CHAPTER 21

Earnings per Share

INTRODUCTION

The financial press is littered with earnings data expressed as earnings per share (EPS). For instance, a quick perusal of the financial press on a given day turned up many EPS references: PMC-Sierra announced a revised earnings forecast in March 2001, quantified as 13 to 15 cents per share; Analysts announced new (lower) predictions of Nortel Networks Corp. earnings: U.S. 63 cents; AT Plastics announced a 74 cent per share loss, sending its share price down 7.1%. Earnings per share is clearly a number that interests many users.

Earnings per share is conceptually very simple: the earnings of the company divided by the number of shares outstanding. As is often the case in accounting, however, significant complications can arise when applying this simple concept. For example:

- What if new shares were issued during the year?
- What if there are several different classes of shares outstanding?
- Which measure of earnings should be used?
- What effect would convertible senior securities have on EPS if they were converted?
- Must outstanding stock options be factored into calculations?

Earnings per share is calculated in order to indicate each shareholder's proportionate share in the company's earnings. An absolute increase in net income is not, in itself, an adequate indicator because net income may go up as a result of increased investment. For example, a company may issue more shares for cash. The increased investment would be expected to generate additional earnings for the company, but for an individual shareholder, the real question is whether net income increased enough to compensate for the increased number of shares outstanding. If the proportionate increase in net income was less than the proportionate increase in outstanding shares, then earnings attributable to each share will decline. This is an example of *earnings dilution*.

Since EPS figures are so widely used in the financial community, and because companies might calculate EPS figures in different ways, accounting standard setters in many countries (as well as the IASC) have attempted to standardize the computation of EPS. In Canada, EPS calculations for public companies are governed by Section 3500 of the *CICA Handbook*. This standard was revised in December 2000 to bring Canadian rules into line with U.S. and international standards, specifically FASB Statement 128 and IAS 33. It is effective January 2001.

The purpose of this chapter is to explain the AcSB recommendations for calculating earnings per share. In addition to presenting the calculations themselves, we will discuss the uses and limitations of earnings per share data.

APPLICABILITY OF SECTION 3500

Section 3500 of the *CICA Handbook* applies only to public corporations, since it is used as a communication and evaluation tool for these companies. Section 3500 is one of only three sections in the accounting recommendations that apply exclusively to public companies.[1]

EPS is far less relevant for most private companies. Nevertheless, it may be quite useful for private corporations that have a larger shareholder group, such as co-operatives and employee-owned companies, to present EPS as a routine part of their financial reporting. If EPS is calculated, the corporation should follow the recommendations of Section 3500.

EPS FIGURES

basic earnings per share (EPS)
earnings per share calculated as net income available to common shareholders (earnings less preferred share claims or other prior claims) divided by the weighted average common shares outstanding

The *CICA Handbook* recommends that companies report two EPS numbers, each based on different measures of earnings and outstanding shares. The first EPS statistic is **basic earnings per share**, calculated on (1) earnings before discontinued operations and extraordinary items, and (2) net income. The EPS effect of discontinued operations and/or extraordinary items must also be shown separately.

Basic EPS is useful for comparing a company's current performance with its past record. However, many companies have significant amounts of convertible securities and/or stock options outstanding which pose the possibility of potential substantial change in the corporation's capital structure. Therefore, in order to provide the basis for useful forward comparisons, diluted EPS must also be disclosed. **Diluted earnings per share** shows the maximum dilution to EPS that could occur of all potentially available common shares were issued — that is, if all stock options were exercised, and all convertible debt and convertible preferred shares were converted to common shares.

Diluted EPS must be calculated both on (1) earnings before discontinued operations and extraordinary items, and (2) net income. The diluted EPS effect of discontinued operations and/or extraordinary items must be disclosed as well.

Basic and diluted EPS must be shown on the face of the income statement [*CICA* 3500.60]. The per-share amounts for discontinued operations and extraordinary items may be shown either on the face of the income statement or in the disclosure notes [*CICA* 3500.61].

The *CICA Handbook* requires two types of EPS, each calculated on two measures of earnings. However, a company may wish to calculate other EPS amounts. Management might feel that they would be useful to financial statement users. For example, a company might want to report EPS based on earnings before goodwill amortization [*CICA* 1580.82].They might also want to report EPS based on earnings after discontinued operations but before extraordinary items. Supplemental EPS numbers are calculated on a basis consistent with the concepts and rules described in the following discussion. These supplemental EPS numbers are disclosed only in the notes, not on the face of the income statement [*CICA* 3500.62].

BASIC EARNINGS PER SHARE

The basic earnings per share calculation for the year (or for an interim period, such as a quarter) is as follows:

$$\frac{\text{Net income available to common shareholders}}{\text{Weighted average number of common shares outstanding}}$$

[1] The other two are those relating to segmented disclosure (Section 1701) and interim reporting (Section 1750).

The denominator of this fraction is the weighted average of outstanding shares, where shares are weighted by the length of time they are outstanding during the period. If a corporation issues additional shares during the year, additional capital invested in the business should increase net income. Similarly, if the number of shares outstanding during the year is reduced through a share buy-back program, withdrawal of capital from the business can be expected to reduce net income. The intent of the EPS calculation is to reflect the relative effect on income after including the change in shares outstanding.

On the other hand, if there were **share splits** or **share dividends** during the year, the denominator is stated in equivalent share units *after* the split or dividend. As well, all previous EPS calculations (which are used for comparative purposes) are restated. The reason for the difference in treatment between new shares issued in exchange for assets and new shares issued as splits and dividends is that splits and dividends do not bring new capital into the corporation and therefore cannot be expected to generate additional earnings. Earnings are simply split up into smaller pieces. Alternatively, in a **reverse split**, earnings are divided into *larger* per-share splits because there are fewer shares outstanding after the reverse split.

reverse split
a decrease in the number of shares outstanding with no change in the recorded capital accounts of the company; may be used to increase the value per share of a company

The following sections explain more fully both the numerator and denominator of the basic EPS calculation.

Earnings Available to Common Shareholders

The numerator, *net income available to common shareholders*, is the net income of the company minus dividends attributable to senior shares. In the context of EPS calculations, **senior shares** refer to those shares that have dividend claims with higher priority than common shares. Most preferred shares meet this criterion. The restricted dividend rights of senior shares are deducted from net income as follows:

- For *cumulative* senior shares, dividends are subtracted from net income regardless of whether they have been declared for the year; any future dividend distributions to common shareholders can be made only after senior shares' dividend in arrears have been paid.
- For *non-cumulative* senior shares, only those dividends actually declared during the period are subtracted in determining the EPS numerator.

What happens if cumulative preferred share dividends go in arrears, and, say, three years dividends are paid in Year 3 to clear up the arrears and bring the shares up to date? In Years 1 and 2, when no dividends were paid, the annual dividend entitlement would have been deducted from earnings in order to calculate basic EPS. In the third year, three years dividends are paid, but *only the current year dividend is deducted* when calculating basic EPS. It would be double counting (or double deducting!) to take Year 1 and Year 2 dividends off again. So, for cumulative shares, the maximum deduction is one year's dividend. If shares are non-cumulative, a deduction is made for any dividends declared in the period. This represents their maximum claim to earnings.

If there are "senior" shares that *participate* in dividends with common, then they are not considered to be senior shares for the purpose of EPS calculation, regardless of whether they are called "preferred shares" or "senior shares" in the corporate charter. See the section on multiple classes of shares, below.

While dividends on preferred shares are the most frequent adjustment to the earnings line in basic EPS, there is a possibility that more adjustments are needed. If preferred shares are retired during the period, a "gain" or "loss" will be recorded directly in shareholders' equity, as described in Chapter 14. This gain or loss is not included in net income, but is included (gains are added and losses subtracted) in the numerator of basic EPS. Another deduction would be the capital charge to retained earnings that is required for some kinds of convertible bonds, as we saw in Chapter 15.

Remember, though, that some preferred shares are classified as debt on the balance sheet because they have the characteristics of debt — usually, fixed repayment terms. Dividends on these preferred shares must be deducted on the income statement, not the retained earnings statement. As a result, the number presented as net income may be after the preferred dividends. Be sure you understand your starting point; preferred dividends are only deducted once!

The important question is always *what are the earnings available to common shareholders?* Increases or decreases to all equity accounts should be carefully reviewed before EPS is calculated.

Weighted Average Number of Shares

The denominator of the EPS calculation reflects the number of shares, on average, that were outstanding during the year. The denominator will include all classes of shares that have residual claim (last call) on dividends, regardless of the name given to them in the corporate charter or in the accounting records. The denominator is weighted by the proportion of the year that shares are outstanding. The result is **weighted average common shares outstanding (WACS)**.

For example, assume that a company has 9,000,000 shares outstanding at the beginning of the year and issues an additional 3,000,000 shares on 1 September, two-thirds of the way through the year. There will have been 9,000,000 shares outstanding for the eight months of the year, followed by 12,000,000 for the last four months. The weighted average number of shares outstanding is 10,000,000. This can be calculated using a variety of paths. For example:

Method 1

9,000,000 shares outstanding for eight months: $9{,}000{,}000 \times \frac{8}{12}$	= 6,000,000
12,000,000 shares outstanding for four months: $12{,}000{,}000 \times \frac{4}{12}$	= 4,000,000
Weighted average number of common shares outstanding (WACS)	= 10,000,000

Method 2

Number of shares	×	Months outstanding	=	Weighted no. of shares
9,000,000		8		72,000,000
12,000,000		4		48,000,000
Total				120,000,000

Weighted average number of shares (WACS) = 120,000,000 ÷ 12 months = 10,000,000

Method 3

9,000,000 shares outstanding for the full year: $9{,}000{,}000 \times \frac{12}{12}$	= 9,000,000
3,000,000 shares outstanding for four months: $3{,}000{,}000 \times \frac{4}{12}$	= 1,000,000
Weighted average number of common shares outstanding (WACS)	= 10,000,000

Each of these methods generates the same, correct answer and you may use any method. However, in this book, we'll use the first method for our illustrations.

We've shown this calculation by months, although the most precise weighted average is based on days. Weighting by month provides a reasonable approximation, but calculations may have to be done more precisely if the approximation is not adequate in the circumstances. For instance, if outstanding shares fluctuated heavily during a month, daily averaging would be far more accurate.

Share Splits and Share Dividends

If shares are issued as a stock dividend or a stock split, they are not weight-averaged. Instead, the stock dividend or stock split is treated as though it had been in effect for the whole period. It is also included for all prior years disclosed as comparative data. That is, dividend and split shares are treated as though they have always been outstanding.

To illustrate the calculation of the weighted average number of shares when there is a share split or share dividend, consider the following example:

- A corporation has 5,000 shares outstanding on 1 January 20X1, the beginning of the fiscal year.
- On 31 March 20X1, the conversion privilege on convertible bonds is exercised by the bondholders, resulting in an additional 2,400 shares being issued.
- On 1 September 20X1, the stock is split 2-for-1.
- On 1 October 20X1, an additional 3,000 shares are issued for cash.

In this example, each share outstanding prior to 1 September 20X1 is equivalent two shares outstanding after that date. The denominator of the EPS calculation must be adjusted to reflect the shares outstanding at the end of the year, after the stock split. The discontinuity that occurs as the result of the stock split must be adjusted by multiplying the pre-September outstanding shares by the split ratio (in this example, $\times$ 2) as follows:

WACS calculation:

$5{,}000 \times 2 \times \frac{3}{12}$	2,500
$7{,}400 \times 2 \times \frac{5}{12}$	6,167
$14{,}800 \times \frac{1}{12}$	1,233
$17{,}800 \times \frac{3}{12}$	4,450
Weighted average number of common shares outstanding, post-split	14,350

The 5,000 shares outstanding for the first three months are equivalent to 10,000 (5,000 $\times$ 2) shares after the split. Therefore, we multiply by two. Similarly, the 7,400 shares are multiplied by two to arrive at 14,800 post-split shares. Shares from the date of the split are *not* multiplied by two, because they are already post-split shares.

Remember, when a share dividend, split, or reverse split occurs, common share equity is not changed, nor is the composition of the broader capital structure (i.e., including long term debt) affected. There is no substantive change to the corporation's net asset structure. However, the new EPS figures will be based on a different number of shares than were previous years' EPS. In order to assure comparability of EPS, *all* reported prior years' EPS numbers are restated to reflect the new division of the common share equity. In the case of a two-for-one split, as was used in the example above, all prior EPS figures will be divided by two because one share outstanding in previous years is equivalent to two shares outstanding after the split.

A split or dividend will also change the terms of all outstanding share commitment contracts. That is, *when there is a stock split or stock dividend, the number of shares into which each senior security is convertible is adjusted accordingly*. For example, if a $1,000 bond was convertible into four shares of common stock prior to the split (i.e., a conversion price of $250), then it will automatically be convertible into eight shares (a conversion price of $125) after the split. There is always an anti-dilution provision to protect the holders of convertible securities and options. Option contracts will also be changed, increasing the number of shares offered and decreasing the option price.

Finally, if there is a stock dividend or stock split *after the end of the year* (in the next fiscal period), it is also included in the weighted average calculation. Assume a company's fiscal year ends on 31 December 20X5. Thirty thousand common shares have been outstanding for the entire period. On 15 January 20X6, there is a reverse stock split, 1-for-3. The 30,000 shares become 10,000 shares. This 10,000 figure will be used for EPS calculations even though the split happened after the end of the year. After all, by the time the financial statements are released, the shareholders will be holding their new, smaller shares, and all data should be applicable to this new capital arrangement.

EXHIBIT 21-1

BASIC EPS CALCULATION

	Earnings available to common shares	Weighted average number of shares	Earnings per share
Earnings:			
Net income before extraordinary gain	$147,000		
Less preferred dividend entitlement: 5,000 shares @ $1.20	(6,000)		
Earnings available to common, before ex. gain	141,000		
Extraordinary gain	30,000		
Earnings available to common, after ex. gain	$171,000		
Shares outstanding:			
$90,000 \times \frac{4}{12}$		30,000	
$96,000 \times \frac{8}{12}$		64,000	
Weighted average		94,000	
EPS:			
Income extraordinary items	$141,000	94,000	$1.50
Extraordinary gain	$ 30,000	94,000	0.32
Net income	$171,000	94,000	1.82

Example: Basic EPS

Exhibit 21-1 shows the computation of basic EPS in a situation involving a simple capital structure that has nonconvertible preferred shares. It is based on the following facts:

1. Capital structure:

Common shares, no-par, outstanding on 1 January	90,000 shares
Common shares, sold and issued 1 May	6,000 shares
Preferred shares, no-par, $1.20 (cumulative, nonconvertible) outstanding on 1 January	5,000 shares

2. Earnings data for the year ending 31 December:

Net income before extraordinary gain	$147,000
Extraordinary gain, net of tax	30,000
Net income	$177,000

Exhibit 21-1 presents the computation of the weighted-average number of common shares outstanding during the year. The numerator is adjusted for preferred dividends. Remember that net income is *before* these dividends, and you have to adjust for them in your calculations.

The final presentation of EPS, based on the example in Exhibit 21-1, would appear as follows:

Earnings per share:	
Income before extraordinary gain	$1.50
Extraordinary gain	0.32
Net income	$1.82

The two EPS figures of $1.50 and $1.82 must be reported on the face of the income statement. The $0.32 EPS figure for the extraordinary gain may be reported either on the income statement or in the disclosure notes.

Multiple Classes of Shares

As we saw in Chapter 14, Canadian corporations often have multiple classes of common or residual shares outstanding. These share classes *participate* in dividends. A primary reason for having two or more classes of common shares is to vary the voting rights between the different classes, normally in order to prevent the controlling shareholders from losing control to hostile investors.

The fact of multiple classes does not, in itself, mean that there is a difference in dividend privileges. *As long as the several classes share dividends equally, share for share, then they are all lumped together in the denominator of the EPS calculation*.

If the sharing of dividends is *unequal*, however, then more than one EPS will be calculated. For example, assume that a corporation has two classes of shares, Class A and Class B. Both Class A and Class B shares are entitled to receive a $1 per share dividend. After this amount, Class A shares are entitled to receive $2 per share in dividends for every $1 per share paid to Class B. Other information:

Shares outstanding throughout the year:	
Class A	20,000
Class B	80,000
Net income	$220,000

To keep it simple, let's assume that there are no preferred shares, no shares issued or retired during the year, and no discontinued operations or extraordinary items included in net income. Dividends were paid at the base level — that is, $1 per share to the Class A shares, and $1 to the Class B shares.

To calculate EPS when the two share classes participate in dividend declarations, the numerator is adjusted downward for dividends declared. The base dividend would be deducted, even if not declared, if it were cumulative. The resulting unallocated earnings pool is then divided between each share class according to a ratio. The ratio is a combination of the number of shares outstanding in each class and their relative dividend entitlement. The result is two earnings pools, which are then divided by the number of shares for each respective pool. Finally, EPS for each pool is the additive sum of the dividends declared and the entitlement to undistributed earnings. The calculations:

Step 1 — Calculate earnings less all dividends declared

Net income is $220,000, less ($1 × (20,000 Class A shares plus 80,000 Class B shares))

Undistributed net income is $120,000

Step 2 — Allocate the earnings pool to the share classes

Class A receives $120,000 × 40/120* = $40,000

Class B receives $120,000 × 80/120* = $80,000

* There are 20,000 Class A shares outstanding, entitled to two times the Class B dividend.

Equivalent Class B shares = 40,000 (20,000 × 2)
There are 80,000 Class B shares outstanding = 80,000.
Fractions: A: 40 ÷ (40 + 80); B: 80 ÷ (40 + 80)

Step 3 — Determine per share amounts
Class A: $40,000 ÷ 20,000 shares = $2
Class B: $80,000 ÷ 80,000 shares = $1

Step 4 — Add dividends declared to the additional per share amounts.
Class A: $1 + $2 = $3
Class B: $1 + $1 = $2

Basic EPS for each class reflects both dividends paid and dividends that would be paid if all income were declared as dividends. The denominator would be a weighted average for each class if shares outstanding had changed during the period.

This same kind of calculation would be done if participating preferred shares were outstanding — first, the base dividend would be allocated, then the appropriate division of all earnings over the base level.

In the example above, if alternatively, the Class A and B shares were entitled to equal dividends, dollar for dollar at all levels of income, basic EPS would be calculated at $2.20 [$220,000 ÷ (20,000 + 80,000)]. Both share classes would rank equally in the denominator because of their equal dividend entitlements.

CONCEPT REVIEW

1. What type of corporation is required to disclose earnings per share amounts?
2. What is the formula for basic earnings per share ?
3. How does *earnings available to common shares* differ from net income?
4. Asquith Corporation has 2,000 common shares outstanding on 1 January 20X0, issues another 400 shares on 1 July 20X0, and declares a 2-for-1 stock split on 31 December 20X0. What is the weighted average number of shares outstanding at the end of the year? What is the impact of the stock split on prior years' EPS amounts?
5. List the steps in calculating basic EPS when there are multiple common share classes.

DILUTED EPS

As we explained earlier, **earnings dilution** occurs when additional shares are issued without a sufficient proportionate increase in the level of earnings. Diluted EPS is meant to reflect this potential for potential earnings dilution because of existing contracts. It is based on the *hypothetical situation* of complete conversion, and options exercise. Diluted EPS is hypothetical in that it largely reflects the results of share transactions that have not really taken place, but could take place in the future. It's often called a "what if" number — that is, what happens if all contingent claims to common shares were exercised? To be specific, diluted EPS reflects the hypothetical earnings dilution that occurs if:

- convertible senior securities outstanding at the end of the fiscal year are converted to common shares [*CICA* 3500.35], *and*
- all options to purchase shares that are outstanding at the end of the fiscal year are exercised [*CICA* 3500.38], *and*
- The convertible senior securities that actually converted during the year did so at the beginning of the fiscal year [*CICA* 3500.34], *and*

- Shares issued because of share option contracts during the year were issued at the beginning of the year [*CICA* 3500.34].

Convertible senior securities include debt and preferred shares, senior to common shares in their entitlement to interest or dividends. If these are convertible to common shares at some point in the future, or have been converted to common shares during the period, they will enter into the calculation of diluted EPS.

As explained in Chapter 15, an **option** gives the holder the right to acquire a share at a stated price. Options sometimes are issued as a part of a package offering of securities (i.e., as a sweetener to attract buyers to a bond issue) and also are widely used as a form of executive compensation. There are various types of options, including stock rights, warrants, and employee stock options. Some options may have a limited life, while others may continue indefinitely. In this chapter, the word *options* will be used to encompass all alternatives. If options were exercised and/or outstanding, they will be considered when calculating diluted EPS.

However, diluted EPS is meant to be a worst-case scenario. If conversion of senior securities or exercise of options would result in an *increase* in earnings per share, they are called **anti-dilutive**. They are excluded from the calculation of diluted EPS, because we're looking for the lowest EPS number possible.

Diluted EPS Calculation

To calculate diluted EPS, adjustments are made for dilutive options and convertible securities.

in-the-money

wherein the market price of a share exceeds the exercise price of a right (or option) thereby making it attractive for the holder to exercise his/her right; the rights are "in the money"

Options are dilutive when they are in-the-money. Options are said to be **in-the-money** *if the exercise price is lower than the market value of common shares*. For example, if an option contract specifies a share price of $34.50, and the share price is $50, then the options are in-the-money. If the share price is $20, the options are not in-the-money.

Option adjustments are based on the **"treasury stock" method** — proceeds are assumed to be used to reacquire and retire common shares at the average market price during the period. [*CICA* 3500.38]. Assume that 1,000 options are outstanding with an exercise price of $10. The average price of common shares during the year was $40, and these options are in-the-money. If the options were exercised, another 1,000 shares would be outstanding for the period, and the company would receive $10,000 ($10 × 1,000). We assume that this $10,000 is used to repurchase and retire other common shares, also at the beginning of the year. Ten thousand dollars would buy 250 shares ($10,000 ÷ $40). The denominator of diluted EPS would be increased by 1,000 shares issued and decreased by 250 shares retired. *Options are dilutive when the number of shares issued is greater than the shares retired. Of course, none of these shares are really issued or retired*. The whole calculation is hypothetical.

You should be aware that this is not the only way to handle options in EPS calculations. For instance, up to the end of 2000, Canadian standards required the assumption that option proceeds were invested. The *numerator* of the EPS fraction was increased by imputed after-tax earnings. The denominator was increased by shares issued. The treasury stock method is more in line with US and international standards.

Bond and preferred share adjustments are based on the **"if-converted" method** — that is, the numerator and denominator are adjusted to reflect what would have been *if* the securities were *converted* at the beginning of the period [*CICA* 3500.35]. The numerator of the EPS fraction is adjusted for dividends or after-tax interest that would be saved if the bonds or preferred shares were converted. In other words, how would the numerator be different if the convertible bonds didn't exist? Interest expense would be eliminated. Additionally, if there had been a capital charge recorded directly to retained earnings because of the convertible bonds, this would have been deducted, on an after-tax basis, in arriving at basic EPS. It would be added back here, because it would not exist if the bond were converted. What if the preferred shares didn't exist? There would be no dividends. The effect to the denominator is straightforward in both cases. More shares would be outstanding! If there are a variety of conversion terms, perhaps depending on when the conversion were to take place, the most dilutive alternative must be used [*CICA* 3500.27]. Again, income and shares outstanding did not really change — the calculations are based on a hypothetical situation.

To summarize the potential adjustments:

	Change to numerator	Change to denominator
Options	None	Increase by shares issued Decrease by shares retired (Proceeds/ market value)
Convertible bonds	Increase by after-tax interest avoided*	Increase by shares issued
Convertible preferred shares	Increase by dividend claim avoided*	Increase by shares issued

* If there were any other items recorded in the financial statements, such as a capital charge on convertible bonds or gains or losses on preferred share retirement, these items would have been adjusted when calculating the basic EPS numerator and also included in the numerator adjustment here.

Notice that convertible bonds and convertible preferred shares involve a change to the numerator and a change to the denominator. The **individual effect** of each convertible item is represented by this ratio. For instance, if there was $10,000 of after-tax interest on a bond that was convertible into 40,000 common shares, the individual effect would be $0.25 [$10,000 ÷ 40,000]

The steps in calculating diluted EPS are listed in Exhibit 21-2. We'll explain these steps in the example that follows; you should refer to the list as the example progresses.

Diluted EPS Calculation: Example

Assume that a corporation has the following capital structure for all of 20X1:

- Convertible debentures: $1,000,000 maturity value issued at 110; $100,000 of proceeds attributable to the conversion option (and classified as shareholders' equity); 12% interest per annum, paid quarterly; convertible into 10 common shares for each $1,000 of bond maturity value at the option of the investor.
- Convertible preferred shares: 1,000 shares issued and outstanding; $150 annual per share dividend, cumulative; callable at $1,200 per share; convertible into common shares on a 5:1 basis until 20X5; convertible on a 10:1 basis thereafter.
- Common shares: 20,000 shares issued and outstanding all year.

Net income for the year 20X1 is $600,000. There were no discontinued operations or extraordinary items. The corporation's income tax rate is 40%. There are executive stock options outstanding at the end of the year, allowing purchase of 4,000 common shares at an option price of $50. The average market value of common shares during the period was $125.

Basic EPS for 20X1 is calculated at the top of Exhibit 21-3. Preferred dividends are deducted from net income to find the earnings available to the common shares, and this amount is divided by 20,000 common shares outstanding.

As the first step in diluted EPS calculation (refer to Exhibit 21-2 for a list of steps), these basic EPS numbers are carried forward. There were no discontinued operations or extraordinary items, so the basic EPS based on net income used for diluted.

No shares were issued under option contracts during the year. There were no actual conversions of senior securities during the period. Steps (2) and (4) can be skipped. (We'll look at examples of these soon, never fear!)

Outstanding options are the next thing to consider, in step (3). There are options outstanding at the end of the year to issue 4,000 common shares at $50. These options are in-the-money, and therefore dilutive, because the $50 option price is less than the $125 average market price of shares during the period. They must be included when calculating diluted EPS.

If these shares had been issued at the beginning of the period, another 4,000 shares would have been outstanding for the whole period, and the denominator would be increased by

EXHIBIT 21-2

STEPS IN CALCULATING DILUTED EPS

To calculate diluted EPS:

1. Begin with the basic EPS numbers, based on earnings before discontinued operations and extraordinary items. If there were no discontinued operations or extraordinary items, begin with the only basic EPS number available, basic EPS based on net income.
2. If any options were exercised during the period, determine if the options were in-the-money, and thus dilutive. Adjust the denominator as though these shares were issued at the beginning of the period, using the treasury stock method.
3. Identify options outstanding at the end of the period, the option price, and the average share price for the period. Determine if the options are in-the-money, and thus dilutive. Adjust the denominator as though these shares were issued at the beginning of the period, using the treasury stock method. If quarterly information is given, perform the calculations quarterly. Calculate a subtotal at this point.
4. Identify any convertible senior debt or shares that actually converted during the period. Calculate the individual effect of the converted securities, using the if-converted method. This adjustment moves the conversion back to the beginning of the year. The individual effect of potentially dilutive elements is the calculation of the change to the numerator (after-tax interest or dividends) divided by the change in the denominator (shares issued), for just the one item alone. Both the numerator and denominator reflect the number of months before conversion in the fiscal year.
5. Identify the terms and conditions of convertible senior shares and debt outstanding at year-end. If there are various conversion alternatives at different dates, use the most dilutive alternative. Calculate the individual effect of the converted securities, using the if-converted method.
6. Compare the individual effects of the items identified in steps (4) and (5). Rank the items, from most dilutive (lowest) to least dilutive (highest).
7. Return to the subtotal taken in step (3). Include the effects of actual and potential conversions in cascading order, from most dilutive to least dilutive. Use the ranking from step (6). Calculate a sub-total after each item is added. Exclude anti-dilutive items.
8. Use the lowest calculation as diluted EPS.
9. Repeat the process, beginning with basic EPS for net income. Use exactly the same adjustments to the numerator and the denominator as in the first calculation. (No second test for anti-dilution is allowed.)

4,000 shares. A total of $200,000 (4,000 × $50) would have been raised by the company. In the diluted EPS calculation, we assume that these proceeds would have been used to retire other common shares at the market price: 1,600 shares ($200,000 ÷ $125). These options are dilutive, so they are included in the diluted EPS calculation. They're dilutive because they make EPS go down. The denominator increases by 2,400 shares (4,000 − 1,600) and the numerator doesn't change. (You can make this calculation directly, as (4,000 − ($200,000 ÷ 125).) The EPS amount has declined to $20.09.

In step five, the individual effects of assumed conversion of the two convertible securities are calculated. The numerator of the EPS fraction is adjusted by removing the dividends or after-tax interest that will be saved if the senior securities are converted. The effect to the denominator is the additional shares promised.

Note that the bond interest is deductible for income tax purposes, and since net income is an after-tax amount, the interest saved must be calculated on an after-tax basis. Assuming a tax rate of 40%, the interest saving is multiplied by the 60% after-tax equivalent: $120,000 × (1.0 − .4) = $72,000. Shares issued would be 10,000, and the individual effect of this convertible security is $7.20 ($72,000 ÷ 10,000). This is dilutive in relation to basic EPS ($22.50).

For preferred shares, $150,000 of dividends would be avoided if the preferred shares had been converted to common shares at the beginning of the period. Dividends are not tax deductible, and there is no need to adjust for tax. The shares may be converted at the rate of 5:1 until the end of 20X5, and then the conversion ratio changes to 10:1. The more dilutive 10:1 ratio must be used in these calculations. Thus, another 10,000 shares would be issued. This is an individual effect of $15, dilutive to basic EPS, but less dilutive than the $7.20 bonds. This is the step (6) ranking.

Now for step (7). First come the bonds, as they are more dilutive than the preferred shares. The subtotal is taken. Inclusion of the bonds reduces diluted EPS to $16.11, and the preferred shares, with an individual affect of $15, are still dilutive. They are added in. Step (8) is the final determination of diluted EPS — $15.85.

Diluted EPS Cascade

In Example 21-3, we illustrated the diluted EPS calculation as a cascade of adjustments, going from the most dilutive to the least dilutive. Note that options that are in-the-money are always dilutive, as they involve no increase to the numerator. That's why they're done first in diluted EPS calculations. Within option classes, the options with the lowest exercise price (largest differential between shares issued and share retired) will be the most dilutive.

After options, the convertible securities with the lowest individual EPS effect are the most dilutive, and are entered first. If inclusion of a later item causes EPS to increase, it is dilutive. For instance, assume that basic EPS is $1.00, the result of dividing $100,000 income available to common shareholders by 100,000 weighted average common shares. Two potentially dilutive securities are outstanding: Preferred shares, with a $45,000 dividend, and a 100,000 share entitlement ($0.45 individual effect), and bonds, with after-tax interest of $68,000, and a share entitlement of 75,000 shares ($0.91 individual effect). Preferred shares are the more dilutive but both look dilutive when compared to basic EPS of $1.

After the more dilutive element is included, diluted EPS is $0.73 ($100,000 + $45,000) / (100,000 + 100,000). Inclusion of the second convertible security, which looked dilutive on first analysis, would *increase* this result to $0.77 ($100,000 + $45,000 + $68,000) / (100,000 + 100,000 + 75,000). Diluted EPS is reported as $0.73, and the second security is omitted from the calculation. The *CICA Handbook* is very specific that the cascade approach be followed and diluted EPS be reported as the lowest possible number [*CICA* 3500.31].

Actual Conversions During The Period

So far, we've illustrated diluted EPS giving effect to the year-end obligations to issue shares. Diluted EPS must also include calculations that reflect actual conversions, and actual options exercised, during the period. It's often called **backdating**: adjusting the actual issuance to pretend it took place at the beginning of the period. This backdating is only done if the result is dilutive [*CICA* 3500.34]. Backdating puts actual conversions on the same footing as potential conversions, which are effectively backdated to the beginning of the fiscal period.

To demonstrate the impact that conversions have on EPS, let us consider two examples, one for converted preferred shares and another for converted debt.

Example 1 — Converted Preferred Shares

Assume that a corporation has two classes of shares outstanding:

Class A preferred shares, 600 shares issued and outstanding at the beginning of the year; annual dividend rate of $1,000 per share, cumulative, paid at the end of each quarter; each share is convertible into 50 shares of Class B common.

Class B common shares, 50,000 shares issued and outstanding at the beginning of the year.

EXHIBIT 21-3

BASIC AND DILUTED EPS CALCULATIONS

	Earnings available to common shares	Weighted average number of shares	Earnings per share
Earnings:			
Net income	$ 600,000		
Less preferred dividends:			
1,000 shares @$150	$(150,000)		
Earnings available to common	450,000		
Shares outstanding		20,000	
Basic EPS	$ 450,000	20,000	**$22.50**
Diluted EPS:			
Data from basic EPS, above	$ 450,000	20,000	$22.50
Adjustments for assumed options exercise:			
Shares issued		4,000	
Shares retired		−1,600	
Subtotal	$ 450,000	22,400	$20.09
Adjustments for debenture conversion:			
Interest avoided (after-tax equivalent)	$ 72,000		
Additional common shares issued		10,000	
Subtotal	$ 522,000	32,400	$16.11
Adjustments for preferred share conversion:			
Dividends avoided	$ 150,000		
Additional common shares issued		10,000	
Total	$ 672,000	42,400	$15.85

Also assume that:

- There are no other senior securities.
- Net income for 20X1, the year of the conversion, is $2,175,000; there are no discontinued operations or extraordinary items.
- All 600 shares of Class A are converted into 30,000 Class B shares on 1 October 20X1; dividends for the first three quarters of the year were fully paid.
- Options are outstanding to issue 10,000 common shares to senior executives for $1 per share; the average share price during the year was $8. No options were exercised during the period. These options were outstanding during the whole year.

Basic earnings per share for 20X1 is $30, as calculated at the top of Exhibit 21-4. Diluted EPS begins with this figure, and then includes the effect of options. This reduces EPS to $26.04. Note that the options effect could be directly calculated as 8,750 shares [10,000 − (($10,000 × $1) ÷ $8)]. The result is the same.

EXHIBIT 21-4

BASIC AND DILUTED EPS CALCULATIONS

ACTUAL CONVERSION OF PREFERRED SHARES

	Earnings available to common shares	Weighted average number of shares	Earnings per share
Earnings:			
Net income	$2,175,000		
Less preferred dividends:			
600 shares @ $250 per quarter for 3 quarters	(450,000)		
Earnings available to common	$1,725,000		
Shares outstanding			
50,000 × $\frac{9}{12}$		37,500	
[50,000 + (600 Class A × 50 Class B)] × $\frac{3}{12}$		20,000	
Weighted Average		57,500	
Basic EPS	$1,725,000	57,500	$30.00
Diluted EPS			
Data from basic EPS, above	$1,725,000	57,500	
Adjustments for assumed options exercise:			
Shares issued		10,000	
Shares retired (10,000 × $1) $8		−1,250	
Subtotal	$1,725,000	66,250	$26.04
Adjustments for converted shares:			
Remove dividends on converted shares: 600 shares × $250 for three quarters	$ 450,000		
Adjust shares for preceding 3 quarters: (600 Class A × 50 Class B) × $\frac{9}{12}$		22,500	
Diluted EPS	**$2,175,000**	**88,750**	**$24.51**

The conversion adds 7,500 shares (600 shares × 50 common shares = 30,000, multiplied by the three months they were outstanding, or 3/12) to the *weighted* average number of shares in basic EPS in the year of the conversion. In future years, there will be 30,000 additional Class B shares outstanding, all year. Diluted EPS backdates the conversion. This is demonstrated in the second section of Exhibit 21-4. The essence of backdating is two-fold:

- Income available to common shareholders, the numerator, is adjusted to remove the dividends on the converted Class A shares that would not have been paid if the shares had converted at the beginning of the period. This is $450,000 ($250 per quarter × 600 shares × three quarters.

- The weighted average number of shares is adjusted to reflect the full volume of additional Class B shares issued for the conversion. That is, 30,000 shares × 9/12, or 22,500 shares. The individual effect of this conversion is $20 ($450,000 ÷ 22,500), which is dilutive to the EPS subtotal of $26.04. It is included. The result of the calculation is diluted EPS of $24.51.

Example 2 — Converted Debt

Assume that a corporation has one class of shares outstanding, but also has convertible bonds that converted during the period:

- There are 50,000 common shares outstanding at the beginning of 20X1.
- Net income for 20X1, the year of the conversion, is $3,000,000; there are no discontinued operations or extraordinary items.
- The corporation has $40 million principal amount of 10-year, 9%, convertible debentures that were issued five years previously. The full amount is outstanding at the beginning of 20X1. Interest is paid semi-annually on 1 March and 1 September.
- The net proceeds from the bond issue amounted to $42 million. The present value of the liability cash flow at the date of issue was $40 million; the remaining $2 million was allocated to the conversion option. At the date of issuance, the market rate of interest for non-convertible bonds of similar risk was 9%. Each $1,000 face value of bonds is convertible into two shares of common stock.
- On 30 June 20X1, one-fourth of the bonds are converted.
- The corporation's income tax rate is 40%.

The conversion of $10,000,000 principal amount of bonds results in an additional 20,000 shares issued. In the basic EPS calculation, the additional shares are outstanding for the second half of the year and are weighted proportionately in the denominator. The EPS numerator includes, in net income, a deduction for interest expense on $40,000,000 for the first half of the year and for $30,000,000 for the second half of the year, following conversion. The calculation of basic EPS is shown at the top of Exhibit 21-5.

To calculate diluted EPS, the actual conversion must be backdated to the beginning of the year. Then, the effect of the remaining unconverted bonds must be included. Both of these adjustments are only made if dilutive.

In this example, net income for 20X1 includes six months' interest on the $10,000,000 principal amount of converted bonds. (The bonds were outstanding for six months.) At 9% per annum and with a 40% income tax rate, the impact of interest on the converted bonds is:

$$I = \$10{,}000{,}000 \times 9\% \times \tfrac{6}{12} \times (1.0 - 0.4) = \$270{,}000$$

Notice that the interest adjustment is for the six months that *the bond was outstanding* before conversion. Bonds continue to accrue interest between interest dates, and therefore net income will include accrued interest expense up to the date of conversion. If the bonds had been retired after four months of the fiscal year, four months of interest would be added back.

The second section of Exhibit 21-5 shows the add-back of the $270,000 after-tax interest expense, and the weighted average number of shares is increased to reflect the full amount of shares issued on conversion. The individual or incremental EPS effect is $27 ($270,000 ÷ 10,000), which is dilutive to basic EPS of $50. Next, the assumed conversion of the dilutive convertible bonds, still outstanding at the end of the year, is considered. The impact of interest:

$$I = \$30{,}000{,}000 \times 9\% \times (1.0 - 0.4) = \$1{,}620{,}000$$

Shares to be issued would be 60,000 [($30,000,000 ÷ $1,000) × 2], and the individual effect of the bonds is $27 ($1,620,000 ÷ 60,000). These bonds are dilutive. The adjustment is included in Exhibit 21-5, resulting in diluted EPS of $37.62.

EXHIBIT 21-5

BASIC AND DILUTED EPS CALCULATIONS

PARTIAL CONVERSION OF DEBT

	Earnings available to common shares	Weighted average number of shares	Earnings per share
Earnings:			
Net income	$3,000,000		
Earnings available to common	$3,000,000		
Shares outstanding:			
50,000 shares × $\frac{6}{12}$		25,000	
70,000 shares × $\frac{6}{12}$		35,000	
Weighted average		60,000	
Basic EPS	$3,000,000	60,000	**$50.00**
Diluted EPS:			
Data from basic EPS, above	$ 3,000,00	60,000	
Adjustments for converted shares:			
Remove after-tax interest on converted debt:* $10,000,000 × 9% (1.0 − 0.4) × $\frac{6}{12}$	$ 270,000		
Adjust shares for first six months: 20,000 shares × $\frac{6}{12}$		10,000	
Subtotal	$3,270,000	70,000	$46.71
Adjustment for convertible debt			
Removed after-tax interest on remaining debt: $30,000,000 × 9% × (1.0 − 0.4)	$1,620,000		
Shares: ($30,000,000/1,000) × 2 shares per bond		60,000	
Diluted EPA	$4,890,000	130,000	$37.62

* Formula for computing the interest savings from conversion:
Principal amount converted × interest rate × (1 − tax rate) × fraction of year **before** conversion

OPTIONS If options were exercised during the period, an adjustment would be made to backdate these shares to the beginning of the period. Again, the treasury stock method would be applied and other common shares assumed retired for that portion of the year.

For example, assume that as a result of an options exercise, 10,000 shares were issued on 1 November for $50,000. The average share price for the first ten months of the year was $18. In step (2) of calculating diluted EPS, the denominator would be increased by 8,333 (10,000 × 10/12), effectively backdating the shares issued to 1 January. Shares assumed retired for the 10 months, 2,315 (($50,000 ÷ $18) × 10/12), would be deducted. The adjustment is only made if dilutive. Note that the $18 average market price used was the average for the first 10 months of the year, which is more applicable to this calculation that the average for the entire year.

CONCEPT REVIEW

1. What is the purpose of calculating diluted EPS?
2. Explain the difference between dilutive and anti-dilutive.
3. What is added to the numerator of diluted EPS for convertible bonds? Preferred shares?
4. Assume basic EPS is $5. Two potentially dilutive elements exist, with an individual effect of $1 and $4.50, respectively. Under what circumstances would the $4.50 item be considered anti-dilutive?
5. How do actual conversions of senior securities affect the calculation of diluted EPS?
6. What assumption is made regarding the proceeds of option contracts when calculating diluted EPS? When are options dilutive?

COMPLICATING FACTORS

Convertible Securities Issued During the Year

If convertible securities are issued during the year, the effect of a hypothetical conversion is backdated in the calculation of diluted EPS *only to the date of issue*. For example, suppose that DRV Corporation issued 8% convertible bonds payable on 1 November. When calculating net income, of course, only two months interest would have been included. In calculating diluted EPS, two month's interest (not 12 months!) is added to the numerator and two months of shares (not 12 months!) are added to the denominator. That is, the bond is assumed to be converted on the date of issuance *if it was issued during the period*. Next year, when the bonds have been outstanding for a full year, the adjustments revert to normal: a full year.

Similarly, if options are issued during the year, they are backdated only to the date of issuance in diluted EPS calculations.

Reference Point for Diluted EPS

Assume that basic EPS, based on net income, is lower than EPS based on income before extraordinary items, because of an extraordinary loss. A potentially dilutive security has an individual effect that is anti-dilutive to EPS based on net income, but dilutive to EPS based on income before the extraordinary loss. Should it be included or not? The AsSB's standard requires that the yardstick used be *income before discontinued operations and extraordinary items* [*CICA* 3500.32]. All decisions are made with this as the starting point. So, if an item is included for income before discontinued operations and extraordinary items, it is also always included for EPS based on net income.

For example, assume that income before extraordinary items is $450,000, and there is an after-tax extraordinary loss of $200,000, so net income is $250,000. There are 10,000 common shares outstanding all year, and no preferred shares. Basic EPS is $45 based on income before the extraordinary loss, and $25 based on net income. Convertible debt, with after-tax interest of $70,000 and a share entitlement of 2,500 shares, is outstanding.

The individual dilutive effect of the convertible debt is $28 ($70,000 ÷ 2,500). This is dilutive to income before extraordinary items, but anti-dilutive to net income. The item is included in diluted EPS for both measures of diluted EPS. Diluted EPS for income before extraordinary items is reported as $41.60 ($450,000 + $70,000) ÷ (10,000 + 2,500). Diluted EPS for the extraordinary loss is ($16) ($200,000 ÷ 12,500), and diluted EPS for net income is $25.60 (($250,000 + $70,000) ÷ 12,500). Diluted EPS for net income, at $25.60, is higher than basic EPS of $25! But the bonds have to be included for both diluted EPS measures, since they were definitely dilutive for income before extraordinary items.

Measuring Interest Expense

In the example shown in Exhibit 21-3, the bond was issued at 110, and the premium on issuance was entirely attributable to the conversion option. Thus, the convertible bonds' nominal interest rate could be used to measure interest rate. That's what the exhibit shows: interest expense was measured (appropriately) at 12%.

Most bonds are issued at or very near the market rate of interest. There are both tax reasons and "image" reasons for keeping the nominal rate very close to the market rate, as we discussed in Chapter 13.

However, there may be situations in which a bond is offered at a significant discount or premium. When that happens, it complicates our EPS calculations a bit. The complication arises from the fact that when there is a material premium or discount, interest *expense* will not coincide with interest *paid*. In diluted EPS calculations, the adjustment to the numerator (i.e., earnings available to common shareholders) must be for interest *expense*. A simple adjustment based on the nominal rate of interest will not work — discount or premium amortization must also be taken into account.

For example, suppose that convertible, 10-year bonds with a stated interest rate of 9% payable semi-annually, were issued for $40 million. The bonds have a par value of $40 million. Some of the proceeds must be allocated to the conversion option, and therefore a discount on the bonds must arise. If the market rate of interest for non-convertible bonds of similar risk and maturity was 10% at the time of issuance, the allocation of $40 million proceeds would have been as follows:

Present value of liability:	
Interest = [($40,000,000 × 4.5%) × (P/A, 5%, 20)] =	$22,431,979
Principal = $40,000,000 × (P/F, 5%, 20) =	15,075,579
	$37,507,558
Common share conversion option (the residual)	2,492,442
Net proceeds	$40,000,000

The bond issuance would have been recorded as follows:

Cash	40,000,000	
Discount on bonds	2,492,442	
Bonds payable		40,000,000
Common share conversion rights		2,492,442

Each year, one-tenth of the discount will be amortized (assuming straight-line amortization), and interest expense will be:

Nominal interest paid [$40,000,000 × 9%]	3,600,000
Discount amortization [$2,492,442 ÷ 10]	249,244
Interest expense, per annum	$3,849,244

In EPS calculations, when making the adjustment to earnings available to common, the adjustment must be for interest expense, not interest paid. The interest expense that would have been avoided if $40,000,000 in converted bonds had been converted at the beginning of the year would be $2,309,546 ($3,849,244 × (1.0 − 0.4 tax rate)).

In the examples in this chapter, we will often assume that the nominal interest rate is the same as the market rate to simplify calculations. But be aware that we are adjusting for changes in *interest expense*, not interest payments.

Measuring the Dilutive Effect of Options

Options give the holder the right to acquire shares at a stated price. The price is stated in dollars per share acquired and may increase or decrease on a pre-determined schedule over time. In calculating diluted EPS, the *most dilutive price* is used; effectively, this means the lowest price [*CICA*, 3500.27].

So far, we've looked at examples where the yearly average option price is used to determine the number of common shares that would be bought back. This is a bit of a simplification. Options are dilutive at any time *during the year* that they are in-the-money. For example:

	Quarter			
	1	2	3	4
Average share price for the quarter	$16	$ 7	$ 5	$20
Option exercise price	$10	$10	$10	$10
Options outstanding	5,000	5,000	5,000	5,000

At the end of the fourth quarter, the end of the fiscal year, the $10 options are dilutive with respect to the market value of the shares. That is, the fourth quarter average market value is $20, higher than the option price of $10. Five thousand shares would be issued at $10, and 2,500 (($10 × 5,000) ÷ $20) shares retired. The options are also dilutive with respect to the average share price for the year, taken as the simple average of the market values, $12 (($16 + $7 + $5 + $20) ÷ 4). Five thousand shares would be issued at $10, and 4,167 shares retired (($10 × 5,000) ÷ $12). However, in two quarters, the options were not dilutive (quarters 2 and 3) and in two quarters they were dilutive (quarters 1 and 4). What is the correct approach?

Options should be evaluated according to the price behavior during the period — this might mean weekly, monthly, or quarterly evaluation. When they are anti-dilutive, they should be excluded from EPS calculations. To demonstrate quarterly evaluation:

	Shares Issued	Shares Retired
Quarter 1 — dilutive ($10 < $16)		
5,000 × $\frac{3}{12}$	1,250	
((5,000 × $10) ÷ $16) × $\frac{3}{12}$		781
Quarter 2 — anti-dilutive ($10 > $7)	—	—
Quarter 3 — anti-dilutive ($10 > $5)	—	—
Quarter 4 — dilutive ($10 < $20)		
5,000 × $\frac{3}{12}$	1,250	
((5,000 × $10) ÷ $20) × $\frac{3}{12}$		625
Total	2,500	1,406

When calculating diluted EPS for the year, the denominator would be increased by 2,500 shares and reduced by 1,406 shares. This is a net increase of 1,094 shares. Notice the proration of 3/12 for the calculations, to reflect the three months in each quarter.

In the prior examples in this chapter, we've assumed that the average market value for the year was steady, and that if the options were dilutive at the end of the year, they were also dilutive *at all times* during the year. We'll continue to make this unstated assumption in examples and problems, unless quarterly market values are presented. If quarterly data is provided, you must do quarterly calculations. Otherwise, yearly evaluation is acceptable. On the other hand, quarterly or even monthly or weekly evaluation would be appropriate when share price has been volatile, and is commonplace in practice. We're not going to demonstrate monthly or weekly calculations, because we're sure you get the idea!

This brings up the question of how average share prices are supposed to be determined. Section 3500 of the *CICA Handbook* states that:

> Theoretically, every market transaction for an enterprise's common shares could be included in determining the average market price. As a practical matter, however, a simple average of weekly or monthly prices is usually adequate. Generally, closing market prices are adequate for use in computing the average market price. When prices fluctuate widely, however, the average of the high and low prices for the period usually produces a more representative price.
>
> [*CICA* 3500.41]

Obviously, thought has to go into the calculation of average market price, especially when market price is volatile.

Diluted EPS in a Loss Year

When a company has reported a loss, adding anything positive to the numerator, and/or increasing the number of common shares outstanding, will *reduce the loss per share* and be anti-dilutive. Thus, diluted EPS is generally equal to basic EPS in a loss year because all potentially dilutive items are classified as anti-dilutive.

For example, assume a company reports a $100,000 loss. They have 40,000 weighted average common shares outstanding, and 10,000 cumulative preferred shares, with a total dividend entitlement of $5,000, convertible into 20,000 common shares. Basic *loss* per share is ($2.63) (($100,000 + $5,000) ÷ 40,000). The preferred dividend increases the loss per share. If the preferred shares were assumed converted, diluted EPS would be ($1.67) ($105,000 − $5,000) ÷ (40,000 + 20,000). A smaller loss per share — *a better number* — results and demonstrates that the preferred shares are anti-dilutive. Diluted EPS would be reported as ($2.63).

What if our company reported a loss of $100,000 before discontinued operations, and a $500,000 gain from discontinued operations? Net income would be positive, at $400,000. The preferred shares *are still classified as antidilutive*, because the dilution test is performed with reference to income before discontinued operations and extraordinary items. If it is dilutive — or anti-dilutive — to the top line, it must be classified consistently thereafter.

Another twist relates to options. We saw in the discussion above that options can be measured on a quarterly basis. What if options are dilutive in a number of quarters during the year, but the company ends up with a loss overall? In this case, no weighted average shares will be included for options.

For example, return to the previous options example, where quarterly calculations of the option status resulted in shares issued of 2,500, and shares retired of 1,406. Assume that basic EPS is negative, because of a loss year, say, ($5), the result of dividing a net loss of $450,000 by 90,000 weighted average shares outstanding. If the options were included, the loss per share would decrease to ($4.94) ($450,000 ÷ (90,000 + 2,500 − 1,406). This is another example of the anti-dilutive effect of all share contracts in a loss year. The options would not be included, and diluted EPS would be the same as basic: ($5).

Contingent Shares

A company may enter into an agreement that will involve issuance of more common shares if another event happens. For instance, assume that YKL Corp. issues 125,000 common shares to acquire Total Limited. The value of the transaction is $6,250,000, based on a $50 market price for YKL shares (125,000 × $50 = $6,250,000). One of the clauses in the agreement states that if YKL's stock price is not at least $50 at the end of Year 3, additional common shares would be issued to compensate for the deficiency. The additional common shares are called **contingently issuable shares**.

If the three years goes by and the share price is $40, the shortfall is $1,250,000 ($6,250,000 − (125,000 × $40 = $5,000,000). An additional 31,250 ($1,250,000 ÷ $40) shares must be issued. These shares must be included in the calculation of basic EPS weighted average shares from the beginning of the fourth year, even if they are issued sometime later in Year 4. They are considered issued when the terms for issuance are met [*CICA* 3500.20].

For the purposes of diluted EPS, the contingently issuable shares are assessed at the end of each period. For example, if the share price was $60 at the end of Year 1, no shares would be included. If the share price was $45 at the end of Year 2, the deficiency would be $625,000 ($6,250,000 − (125,000 × $45 = $5,625,000). Shares required would be 13,889 ($625,000 ÷ $45). Diluted EPS requires that current share price be used to assess the contingency, and dilutive elements included in calculations [*CICA* 3500.49].

CONCEPT REVIEW

1. What is the reference point for the dilution test?
2. When is there a difference between interest expense and interest paid? Which is used for convertible bonds in diluted EPS?
3. Why is diluted EPS generally equal to basic EPS in a loss year?
4. What are contingent shares?

COMPREHENSIVE ILLUSTRATION

Having discussed all of the pieces of basic and diluted EPS, we'll now turn to a comprehensive illustration. Exhibit 21-6 contains the basic information for this example, and Exhibit 21-7 works through the EPS calculations.

This example uses data from FRM Corporation, a federally chartered public corporation. The company has a complex capital structure that includes three types of bonds and three classes of capital shares. Of the bond issues, only the 10% debentures are publicly traded. The mortgage bonds and the unsecured debentures were privately placed.

The Class A shares are publicly traded and are listed on the TSE. Each Class A share has one vote. The Class B common shares have 20 votes each. Class B shares are closely held by the company's founding family, as are the preferred shares. Although Class A and Class B have different voting rights, in all other respects the two classes of common shares are equal, including the rights to dividends and to assets upon dissolution.

As can be seen in Exhibit 21-6, two of the bond issues are convertible (into Class A), as are the preferred shares (into Class B). In addition, there are employee stock options outstanding that give the holder the right to acquire one Class A share for each option held.

Additional information:

- Net income for year ended 31 December 20X1 was $1,200,000; there was a $200,000 gain from discontinued operations.
- The income tax rate is 40%.
- The average market value of common shares during the period was: First quarter, $25, Second quarter, $60, third quarter, $50, fourth quarter, $70.
- Dividends were paid quarterly on the preferred shares; there are no dividends in arrears.
- Dividends of $1 per quarter were declared on both Class A and Class B shares; the dividends were payable to shareholders of record at the end of each calendar quarter, and were paid five business days thereafter.
- On 1 October 20X1, 10% debentures with a principal amount of $240,000 were converted into 4,800 Class A shares (included in the outstanding shares listed above). At the beginning of the year, the total principal amount of the 10% debentures was $1,200,000.

Before beginning to work out the earnings per share, it is important to take notice of any changes in the capital structure that occurred during the year. Exhibit 21-6 shows the capital structure at the *end* of the fiscal year, but the *additional information* states that there was

EXHIBIT 21-6

DATA FOR COMPREHENSIVE EPS ILLUSTRATION

FLUMMOX CORPORATION

	Year Ended 31 December 20X1
Capital structure, 31 December 20X1:	
Long term debt:	
12% first mortgage bonds, due 1 July 20X9	$ 1,300,000
10% unsecured debentures, due 31 July 20X7, convertible into Class A common shares at $50 at any time prior to maturity	$ 960,000
8% unsecured debentures, due 15 April 20X20, convertible into 10,300 Class A common shares on or after 31 December 20X12	$ 1,500,000
Capital shares:	
Preferred shares, dividend rate of $20 per share, cumulative and non-participating, convertible to Class B common shares at the rate of two shares of Class B for each share of preferred	5,000 shares
Class A common shares, one vote per share	104,800 shares
Class B common shares, 20 votes per share, sharing dividends equally with Class A common shares	10,000 shares
Options:	
30,000 employee stock options, each exchangeable for one Class A share as follows:	
$30 per share prior to 31 December 20X4	
$40 per share between 1 January 20X4 and 31 December 20X7	
$55 per share between 1 January 20X8 and 31 December 20X10	
The options expire at the close of business on 31 December 20X10.	

a partial conversion of the 10% debentures during the year. That piece of information is important for two reasons:

1. Shares were outstanding for only *part* of the year, which means that we must be careful to calculate correctly the weighted average number of shares outstanding for basic EPS, *and*
2. If dilutive, the conversion must be backdated when calculating diluted EPS.

Of course, the existence of three convertible senior securities plus employee stock options indicates that we will have to calculate diluted EPS. We're going to do options calculations by quarter, since quarterly averages are given.

The top section of Exhibit 21-7 presents the calculation of basic EPS. The starting point is income before discontinued operations. Income is reduced by the preferred dividends. Class A and Class B share equally in dividends, and therefore they are added together for the denominator without adjustment. The weighted average number of shares reflects the new shares issued on 1 October. Basic EPS is $8.09 for income before discontinued operations. The EPS effect of the discontinued operation is $1.80 ($200,000 ÷ 111,200) and EPS for net income is $9.89 (($1,200,000 - $100,000) ÷ 111,200).

Diluted EPS must be calculated. The first item to evaluate is options, dilutive when the option price is less than market value. Each option enables the holder to buy one share of Class A

common. The lowest option price, $30, is used because it will be the most dilutive. The options allow the purchase of 30,000 shares. This will raise capital of $900,000 (30,000 × $30). Retirement is based on a quarter-by-quarter assessment:

	Shares Issued	Shares Retired
Quarter 1 — anti-dilutive ($30 > $25)	—	—
Quarter 2 — dilutive ($30 < $60)		
30,000 × $\frac{3}{12}$	7,500	
$900,000 ÷ $60 × $\frac{3}{12}$		3,750
Quarter 3 — dilutive ($30 < $50)		
30,000 × $\frac{3}{12}$	7,500	
$900,000 / $50 × $\frac{3}{12}$		4,500
Quarter 4 — dilutive ($30 < $70)		
30,000 × $\frac{3}{12}$	7,500	
$900,000 ÷ $70 × $\frac{3}{12}$		3,214
Total	22,500	11,464

These numbers are included in the calculation of diluted EPS, reducing the subtotal to $7.36.

The second section of Exhibit 21-7 shows the calculation of individual effects for the preferred shares and convertible debt:

- ***Preferred shares:*** Each share of the convertible preferred has a dividend of $20. Each is convertible into two shares of Class B common. The individual effect is $20 ÷ 2 = $10. This is clearly anti-dilutive to basic EPS of $8.09. Preferred shares will be excluded from the diluted EPS calculation. (This test calculation can be applied to the outstanding preferred share issue as a whole instead of on a per-share basis; the result would be the same.)
- ***10% debenture, actual conversion:*** The conversion has to be backdated for 9/12 of the year, back from 1 October to 1 January. Both after-tax interest and shares are adjusted. Interest would be $24,000 ($240,000 × 10%) for a year, but is $10,800 after multiplied by (1-tax rate and 9/12 of the year. Shares issued were 4,800, as used in the basic calculation, but are backdated by multiplying by 9/12 of the year. The individual effect is $3.00
- ***10% debentures:*** Interest on the $960,000 principal amount is $96,000. Since the interest is deductible for income tax purposes, the effect of the interest on net income is $57,600 ($96,000 × (1-.4)). At a conversion price of $50, the $960,000 bonds can be converted into 19,200 ($960,000 ÷ $50) Class A common shares. The individual effect equals $3.00.
- ***8% debentures:*** These debentures involve after-tax interest of $72,000 and are convertible into 10,300 Class A common shares. The individual effect is $6.99.

The securities are included in diluted EPS in order of their dilutive effects: first the 10% debentures, both the actual conversion and the assumed conversion. Their order doesn't matter since their individual effects are the same. The subtotal is now $6.68. The 8% bonds, which looked dilutive with respect to basic EPS of $8.09, are anti-dilutive to the subtotal of $6.68. They are excluded. The preferred shares, with an individual effect of $10, are also anti-dilutive and excluded. The result is diluted EPS of $6.68 for income before discontinued operations. The diluted EPS effect of the discontinued operation is $1.38 ($200,000 ÷ 145,036) and diluted EPS for net income is $8.06 (($1,200,000 − $100,000 + $10,800 + $57,600) ÷ 145,036).

EPS disclosure on the income statement would be as follows:

Earnings Per Share:

	Basic	Diluted
Income before discontinued operations	$8.09	$6.68
Discontinued operations	1.80	1.38
Net income	$9.89	$8.06

The individual effect of the discontinued operations may be included the disclosure notes.

RESTATEMENT OF EARNINGS PER SHARE INFORMATION

Once earnings are reported, they are only restated (changed) in limited circumstances. We'll take a close look at this in Chapter 24, and we'll see that changes in estimates, the most common classification of accounting change, only affect the current year and future years. Past earnings are only changed to correct an error, and to reflect the retroactive effect of a change in accounting principle. These retroactive changes are allowed to improve the integrity and the comparability of the financial statements. Reported EPS is also not often revised. EPS will be recalculated if:

- There has been a retroactive change in accounting principle or an error correction. Prior income will change and prior EPS also has to be revised.
- There has been a stock dividend or stock split during the fiscal year (or after the fiscal year but before the financial statements are issued). EPS data is retroactively restated to reflect the different size of share that is now outstanding — EPS numbers would halve in a 2-for-1 stock split, for instance.

Needless to say, the discontinuity is accompanied by extensive disclosure to ensure that financial statement users are adequately informed.

SUBSEQUENT EVENTS

Companies have special disclosure required of subsequent events — transactions or events that take place in the period between the end of the fiscal period and the date financial statements are released. If there have been common shares transactions in this period, then the effects of these share transactions must be disclosed. That is, if a subsequent event would significantly change the number of common shares or the potential common shares used in basic or diluted EPS, the transaction must be disclosed and described. [*CICA* 3500.67] Companies have a relatively short period after their fiscal year in which to report; you can see that they have added incentive to report quickly, to reduce the reporting burden by keeping this time period short.

Examples of transactions that would have to be disclosed include issuing common shares for cash, on the exercise of options, or for cash with the proceeds used to pay out other sources of financing. For example, if common shares were issued after the end of the fiscal year and the proceeds were used to retire preferred shares, disclosure would be required. Issuance of new options or convertible securities would introduce a new element into diluted EPS (potential shares) and also qualifies for disclosure.

EXHIBIT 21-7

COMPREHENSIVE EPS ILLUSTRATION (BASED ON DATA IN EXHIBIT 21-6)

	Earnings available to common shares	Weighted average number of shares	Earnings per share
Basic EPS:			
Income before discontinued operations	$1,000,000		
Less preferred dividends: 5,000 shares @ $20	(100,000)		
Shares outstanding:			
Class A			
100,000 × $\frac{9}{12}$		75,000	
104,800 × $\frac{3}{12}$		26,200	
Class B		10,000	
Basic EPS	$ 900,00	111,200	**$8.90**
Individual effect ratios:			
Preferred shares (per share)	$ 20	2	$10.00
Actual conversion of 10% debenture			
Interest saved: $240,000 × 10% × (1-.4) × $\frac{9}{12}$	$ 10,800		
Add'l weighted average shares: 4,800 × $\frac{9}{12}$		3,600	$3.00
10% debentures (total; after tax)			
Interest saved: $960,000 × 10% × (1-.4)	$ 57,600		
Add'l shares: $960,000/$50		19,200	$3.00
8% debentures (total; after tax)			
Interest saved: $1,500,000 × 8% × (1-.4)	$ 72,000		
Add'l shares: given		10,300	$6.99
Diluted EPS:			
Data from basic	$ 900,000	111,200	
Adjustment for assumed options exercise:			
Shares issued		22,500	
Shares retired		−11,464	
Subtotal	$ 900,000	122,236	$7.36
Actual conversion of 10% debenture:			
Interest saved	$ 10,800		
Add'l weighted average shares		3,600	
Subtotal	$ 910,800	125,836	$7.24
Adjustments for potential conversions:			
10% debenture:			
Interest avoided (after-tax equivalent)	$ 57,600		
Additional common shares issued		19,200	
Subtotal	$ 968,400	145,036	$6.68
8% debenture:			
Anti-dilutive since $6.99 is higher than $6.68			
Adjustment for preferred shares			
Antidilutive since $10.00 is higher than $6.68			
Diluted EPS	$ 968,400	145,036	$6.68

REQUIRED DISCLOSURE

The *CICA Handbook* recommends that EPS disclosure include the following:

1. Basic and diluted EPS must be disclosed on the face of the income statement for income before discontinued operations and extraordinary items, and for net income. The EPS effect of the extraordinary item and/or discontinued operation must also be disclosed, either on the income statement or in a disclosure note.

Basic and diluted EPS must both be disclosed, regardless of the magnitude of the difference between the two. Materiality cannot be invoked to avoid disclosing diluted EPS! However, if basic and diluted EPS numbers are identical, dual presentation can be accomplished in one line on the income statement [*CICA* 3500.60 – .61].

2. A disclosure note must include

- An explanation of adjustments to the numerator of basic EPS for returns to senior securities.
- A reconciliation of the numerator of basic and diluted EPS to the numbers reported on the income statement, and a reconciliation of the denominators used to common shares outstanding.
- Details of securities excluded from the calculation of diluted EPS because they were anti-dilutive.
- Details of any stock dividends or stock splits, taking place after the fiscal year ended, that were included in the calculation of WACS.
- Details of share transactions, or the issuance of options or convertible securities, in the period after the end of the period but before the financial statements are issued.

[*CICA* 3500.65, .67]

USING EPS

EPS numbers can be used as follows:

- ***Basic EPS:*** This is an historical amount. It can be compared with basic EPS numbers from past years to see whether the company is earning more or less for its common shareholders. It is a common way to communicate earnings information to shareholders.
- ***Diluted EPS:*** Companies usually issue convertible securities with the hope and expectation that they will convert to common shares, and become part of the permanent capital of the company. That is, if the company is successful in its financing strategy, the convertible senior securities will be converted rather than repaid. Therefore, diluted EPS gives an indication of the long-run impact that the likely conversions (and options exercises) will have on the earnings attributable to common shares.

One important aspect of EPS numbers is that they mean nothing by themselves. Like all economic indices, they are meaningful only as part of a series. Trend over time is important. The EPS trend may be easier to interpret than the trend in net income, because EPS is adjusted for changes in capital structure. This removes the normal earnings expansion effect that arises through additional share issuances.

The absolute level of EPS is absolutely meaningless. The fact that one company has EPS of $4 per share while another has EPS of $28 per share does not demonstrate that the company with the higher number is more profitable. It all depends on the number of shares outstanding, and therefore one company's EPS cannot be compared to another's. EPS numbers are meaningful only as part of the statistical series of the reporting company's historical and projected earnings per share.

Because it encapsulates a company's entire reported results for the year in a single number, EPS hides much more than it shows. Placing strong reliance on EPS as an indicator of a company's performance is accepting on faith the message put forth by management in its selection of accounting policies, its accounting estimates, and its measurement and reporting of unusual items. A knowledgeable user will use EPS only as a rough guide; it is no substitute for an informed analysis of the company's reporting practices.

CASH FLOW PER SHARE

cash flow per share (CFS)
a calculation indicating the cash flow accruing to common shareholders; a measure of the quality of earnings; generally, but not always, based on cash flow from operations

Some corporations present **cash flow per share (CPS)** as well as earnings per share. The intent might be to provide an indication of the *quality* of earnings in relation to cash flow, and also to assist the user when making cash flow prediction purposes.

Earnings per share are presented for the company's overall net income, with an additional calculation for earnings from continuing operations. Cash flow, in contrast, is nearly always based on cash flow from operations; a number that is deemed to be of interest to investors and creditors.

There have been no *CICA Handbook* recommendations concerning the calculation or presentation of CFS, and, as a result, practice has varied. Some companies have based cash flow per share on cash flow from operations on the cash flow statement. Some base it on cash flow adjusted for non-cash charges, like depreciation and amortization, but before changes in non-cash working capital — which means it is really working capital from operations. Some deduct preferred share dividends, and some do not.

An example of current practice is that of United Grain Growers UGG), which shows both EPS and CPS in a note, rather than on the face of the income statement, a practice permitted for EPS before 2001. Portions of the note:

Earnings Per Share:

For the years ended July 31	2000	1999
Earnings per share	$ 0.06	$ 0.15
Cash flow provided by operations, per share	$ 1.66	$ 1.72

Cash flow per share is derived by deducting annual dividends on preferred shares from cash flow provided by operations, and dividing this total by the weighted average of limited voting common shares outstanding during the year.

In UGG's cash flow statement, "cash flow provided by operations" is a number before adjustments for changes in working capital. UGG explicitly states that preferred share entitlements are deducted in arriving at CPS.

In the absence of guidelines for computing cash flow per share, companies are free to calculate CPS however they wish, as long as the reported numbers are not fraudulent or deliberately misleading. There are two important caveats for those who use CPS figures:

- The numbers are seldom really cash flow from operations. More often CPS shows the increase in net working capital from operations. This is an important difference.
- CPS may be significantly higher than EPS, suggesting that cash is available for dividends. However, cash flow from operations must be used to service debt, make needed capital purchases and fund any planned expansion. Dividends and other discretionary uses are well down the list of uses for operating cash flow.

Cash flow per share figures must be used with great caution!

CONCEPT REVIEW

1. What note disclosure must accompany EPS?
2. What guidelines exist for calculating cash flow per share?
3. Why is cash flow per share frequently not quite what it appears to be?

A FINAL COMMENT

Despite the attention given to EPS numbers, it is extraordinarily difficult to evaluate just what the numbers mean. For example, does the magnitude or the trend of EPS amounts indicate the effectiveness with which management used the resources entrusted to its care? A firm's asset structure changes over time, making comparisons difficult. The emphasis on EPS may encourage transactions that have little purpose except to generate book profits that will enhance EPS.

EPS calculations are complex, and their meaning is sufficiently uncertain that many accountants believe the level of reliance on them is unwarranted. Using EPS as an important element in a company's goal structure can contribute to a short-term management attitude. For example, rather than investing cash in productive activities that enhance the company's earnings, management may engage in share buy-backs in order to decrease the denominator of the EPS calculation. Such attitudes can lead to decisions that are detrimental to the long-term productivity and financial health of the company.

Nevertheless, EPS computations continue to be reported by companies and anticipated by shareholders, analysts, and management. Therefore, knowledge of how EPS amounts are calculated is essential if intelligent use is to be made of the resulting figures.

SUMMARY OF KEY POINTS

1. Earnings per share is intended to indicate whether a company's earning performance has improved or deteriorated, compared to previous periods.
2. Because it is computed on a *per share* basis, EPS removes the effect on earnings of increases in net income due to larger invested capital obtained through new share issues.
3. The *CICA Handbook* recommendations on earnings per share apply only to public companies. The EPS standard was revised effective 2001.
4. EPS figures are computed both before and after the impact of discontinued operations and extraordinary items. The EPS effect of discontinued operations and extraordinary items also must be disclosed.
5. Basic EPS is calculated by dividing earnings available to common shareholders (i.e., earnings less preferred dividend claim) divided by the weighted average number of shares outstanding.
6. Weighted average common shares (WACS), used in the denominator of basic EPS, is calculated by weighting shares for the number of months they are outstanding. However, if there was a share dividend or share split during the reporting period, these additional common shares are not weight-averaged, but treated as though they have always been outstanding.
7. When a company has dilutive senior securities or options, diluted EPS must be disclosed.
8. Diluted EPS excludes the effect of any convertible securities or options contract that has the effect of *increasing* EPS in relation to basic EPS before discontinued operations and extraordinary items.

9. For the purposes of calculating diluted EPS, options are included at their most unfavourable price. Options are assumed issued at the beginning of the fiscal period (or date of issuance, if later), and proceeds used to retire shares. This is called the treasury stock method.

10. Convertible bonds and preferred shares are included in diluted EPS calculations using the if-converted method, whereby after-tax interest and preferred dividends are adjusted on the numerator, and common shares issued on the denominator. This reflects a hypothetical conversion to common shares at the beginning of the year (or date of issuance, if later).

11. Diluted EPS includes an adjustment that backdates actual conversions of senior securities (convertible debt and preferred shares) and shares issued under option contracts to the beginning of the fiscal period, if dilutive.

12. Potentially dilutive items are included in diluted EPS calculations in a cascade, beginning with the most dilutive. Diluted EPS is the lowest number obtainable.

13. EPS is reported on the income statement. A disclosure note must include calculation details, including reconciliation of income and WACS data, and details of excluded, anti-dilutive elements.

14. Comparative EPS figures for previous accounting periods are restated when there has been a share dividend or share split during the reporting period. Prior EPS figures are also restated if prior earnings are adjusted because of a retroactive change in accounting principles, or an error correction. These are the only cases in which EPS figures of prior years are restated.

15. Basic EPS is the basis for comparing the current period's earnings with that of prior periods, while diluted EPS gives an indication of the long-run impact that conversions and options could have on common earnings.

16. Figures reported as *cash flow per share* often reflect the net increase in working capital from operations, rather than cash flow from operations. Practice in this area is not uniform, as there are no guidelines for computing cash flow per share.

KEY TERMS

anti-dilutive, 000
backdating, 000
basic earnings per share, 000
cash flow per share (CPS), 000
contingency issuable shares, 000
convertible senior securities, 000
diluted earnings per share, 000
earnings dilution, 000
if-converted method, 000
individual effect, 000
in-the-money, 000
option, 000
reverse split, 000
senior shares, 000
share splits/share dividends, 000
treasury stock method, 000
weighted average common shares outstanding (WACS), 000

REVIEW PROBLEM

Ice King Products Inc. reported net income after tax of $6.5 million in 20X5. Its capital structure included the following as of 31 December 20X5, the *end* of the company's fiscal year:

Long-term debt:	
Bonds payable, due 20X11, 12%	$ 5,000,000
Bonds payable, due 20X15, 9%, convertible into common shares at the rate of two shares per $100	$10,000,000

Shareholders' equity:	
Preferred shares, $4.50, no-par, cumulative, convertible into common shares at the rate of two common shares for each preferred share	150,000 shares outstanding
Preferred shares, $2.50, no-par, cumulative, convertible into common shares at the rate of one common share for each preferred share	400,000 shares outstanding
Common shares	1,500,000 shares outstanding
Options to purchase common shares:	
Purchase price, $20; expire 20X11	100,000 options
Purchase price, $52; expire 20X14	200,000 options

Transactions during 20X5:

On 1 July, 400,000 common shares were issued on the conversion of 200,000 of the $4.50 preferred shares.

On 1 December, 100,000 common shares were issued for cash.

Other information:

Average common share price, stable during the year, $40

Tax rate, 25%

Quarterly dividends are declared on 31 March, 30 June, 30 September, and 31 December

REVIEW PROBLEM — SOLUTION

	Earnings available to common shares	Weighted average number of shares	Earnings per share
BASIC EPS:			
Net income	$6,500,000		
Less dividends on $4.50 preferred:			
($4.50 ÷ 4) × 350,000 shares × 2 quarters	(787,500)		
($4.50 ÷ 4) × 150,000 shares × 2 quarters	(337,500)		
Less dividends on $2.50 preferred:			
400,000 shares × $2.50	(1,000,000)		
WACS:			
1,000,000 shares × $\frac{6}{12}$		500,000	
1,400,000 shares × $\frac{5}{12}$		583,333	
1,500,000 shares × $\frac{1}{12}$		125,000	
	$4,375,000	**1,208,333**	**$3.62**
Individual effect; dilution test			
9% Bonds:			
interest, $10,000,000 × 9% × (1.00 − .25)	$ 675,000		
shares, $10,000,000 ÷ $100 × 2		200,000	$3.38
$4.50 preferred actual conversion:			
Dividend adjustment:			
(4.50 ÷ 4) × 200,000 shares × 2 quarters	450,000		
Add'l weighted average shares: 400,000 × $\frac{6}{12}$		200,000	$2.25

$4.50 preferred			
dividends, $4.50 × 150,000 shares	$ 675,000		
shares, 150,000 × 2 common shares		300,000	$2.25
$2.50 preferred			
dividends, $2.50 × 400,000	$1,000,000		
shares, 400,000 × 1 share		400,000	$2.50
DILUTED EPS			
Basic EPS	$4,375,000	1,208,333	$3.62
$20 options — shares issued		100,000	
— shares retired (100,000 × $20) ÷ $40		(50,000)	
$52 options — excluded, $52 > $40			
Subtotal	$4,375,000	1,258,333	$3.48
$4.50 preferred actual conversion:			
Dividend adjustment:			
(4.50 ÷ 4) × 200,000 shares × 2 quarters	450,000		
Add'l weighted average shares: 400,000 × $\frac{6}{12}$		200,000	
$4.50 preferred:			
$4.50 × 150,000 shares	675,000		
150,000 preferred @ 2 common shares each		300,000	
Subtotal	$5,500,000	1,758,333	$3.13
$2.50 preferred: $2.50 × 400,000	1,000,000		
Convertible share for share		400,000	
Subtotal	$6,500,000	2,158,333	$3.01
9% Bonds			
Bonds, with an individual effect of $3.38, are dilutive as their inclusion would increase diluted EPS above $3.01.			
Diluted EPS	**$6,500,000**	**2,158,333**	**$3.01**

QUESTIONS

21-1 Why is the EPS statistic so important?

21-2 What kinds of companies are required to disclose EPS?

21-3 What is the formula for basic EPS? Describe the numerator and the denominator.

21-4 Explain why and when dividends on non-cumulative preferred shares must be subtracted from income to compute basic EPS.

21-5 What adjustments, in addition to preferred dividends, may be made to the numerator of basic EPS?

21-6 Why are weighted-average common shares used in EPS calculations?

21-7 A company split its common shares two for one on 30 June of its accounting year, which ends on 31 December. Before the split, 4,000 common shares were outstanding. How many weighted-average common shares should be used in computing EPS? How many shares should be used in computing a comparative EPS amount for the preceding year?

21-8 A company has 100,000 common shares outstanding on 1 January. On 1 June, 20,000 shares are redeemed and cancelled. On 1 October, there is a 20% stock dividend, and another 10,000 shares are issued for cash on 1 December. What is the weighted average number of common shares outstanding during the period?

21-9 What is the required EPS disclosure if there are discontinued operations or extraordinary items on the income statement?

21-10 Assume that a company has two classes of shares that both have voting rights and are entitled to the proceeds of net assets on dissolution. One class is entitled to receive 10 times the dividends of the other class. How would the two classes be treated in calculating basic EPS?

21-11 What is the purpose of diluted EPS?

21-12 Define convertible senior securities.

21-13 A company had net income of $12.3 million, after an extraordinary loss of $420,000. During the year, holders of $10 million of convertible preferred shares converted their investment into common shares. There was another $40 million of convertible preferred shares still outstanding at the end of the year. Options for 40,000 common shares are outstanding at the end of the year. Assuming common share contracts are dilutive, review the steps to calculate diluted EPS.

21-14 What is the starting point in the calculation of diluted EPS?

21-15 Specify the numerator and/or denominator that would be used when calculating diluted EPS for a) convertible preferred shares, b) convertible debt, and c) options.

21-16 Options are outstanding for 100,000 shares at $10. The average market price during the period is $25. What adjustment would be made to the denominator of diluted EPS?

21-17 What is the difference between a dilutive security and an anti-dilutive security? Why is the distinction important in EPS considerations?

21-18 MAC Corp. has basic EPS of $1.25, calculated as $1,250,000 ÷ 1,000,000. The capital structure of the company includes bonds payable, convertible into 400,000 common shares at the investor's option. Bond interest of $300,000 was paid but bond interest expense was $320,000. The tax rate is 40%. Calculate diluted EPS.

21-19 Assume that, in addition to the bonds mentioned in question (18), MAC also has stock options outstanding for 100,000 common shares at $10 per share. The average market price of common shares during the period is $25. Calculate diluted EPS.

21-20 Xvest issued $5,000,000 of convertible preferred shares on 1 October this year. The 50,000 preferred shares have a $4 annual dividend, paid $1 at the end of each quarter. The $1 quarterly dividend was paid at the end of December this year. The shares are convertible into eight common shares each. In calculating diluted EPS, what would be added to the numerator and the denominator?

21-21 CH Holdings has basic EPS of $14. The individual affect of convertible preferred shares is $12, and the individual effect of convertible bonds is $6. In which order should the convertible elements be included in diluted calculations? In what circumstances would the convertible preferred shares be anti-dilutive in sequence?

21-22 Wilson reports basic EPS of $6 on income before discontinued operations, and $2 for net income. Convertible preferred shares with an individual effect of $4 are outstanding. Are the preferred shares dilutive? Explain.

21-23 ABC Company has a $14 million convertible bond outstanding, that requires payment of $1.2 million in interest annually. Interest expense is $1.35 million. Why is interest expense different than the interest paid? For the purposes of diluted EPS, which interest figure is relevant?

21-24 Reston Ltd. has 40,000 options outstanding at a price of $10. Quarterly common share prices in 20X5 were $3, $16, $25 and $8. What adjustments to the denominator of diluted EPS are necessary?

21-25 What does it mean if options are said to be in-the-money? Are options dilutive when they are in-the-money? Explain.

21-26 Wilcorp Ltd. reported basic EPS of ($1.11), a loss of $1.11 per common share, calculated as ($610,500) ÷ 550,000. The company has stock options outstanding for 100,000 common shares at $10 per share. The average common share price was $25 during the period. Calculate diluted EPS.

21-27 Give an example of a situation in which contingently issuable shares are present. When are they included in basic EPS? In diluted EPS?

21-28 Why must cash flow per share data be interpreted with great caution?

Case 21-1
Canforest Ltd.

Canforest Ltd. is a public Canadian company that is one of Canada's largest producers of forest products. The company's operations are segmented among three primary businesses: building materials, paper, and market kraft pulp. Canforest operates thirteen sawmills, eight panelboard mills and six pulp and paper plants, with a major new board mill facility scheduled to open in the next twelve months. The company employs 2,900 people.

An abbreviated income statement is shown in Exhibit 1, and details of the company's financial instruments are in Exhibit 2.

Required:

Describe, in as much detail as possible, the EPS disclosures that would be required in the current year financial statements.

EXHIBIT 1

INCOME STATEMENT

CANFOREST LTD.

(in millions)

For the year ended 31 December	20X4
Revenue	
Sales	$1,804
Investment and other income	109
	1,913
Expenses	
Cost of sales and administration	1,407
Depreciation and depletion	116
Closure provision, Merthoville pulp mill	87
Interest, net	120
	1,730
Operating income, before tax	183
Tax expense	82
Net income	$ 101
Dividends on preferred shares	4.3
Income available to common shareholders	$ 96.7

EXHIBIT 2

FINANCIAL INSTRUMENTS

CANFOREST LTD.

1. Convertible debentures, balance, 31 December 20X4 $75,000,000

   Adjustable rate convertible subordinated debentures, Series 1, due 30 April 20X11, bear interest at a rate which is the greater of 5%, or 1% plus the percentage that two times the common share dividend paid in the previous six months is of the conversion price. $3,750,000 of interest was paid in 20X4. Discount amortization of $625,000 was recorded. The debentures are convertible at the holder's option into common shares of the Company at a conversion price of $20 per common share, on or before the last business day prior to the maturity date of the debentures or the last business day prior to redemption.

2. Preferred Shares, Series B, balance, 31 December 20X4 $ -0-
   (at 31 December 20X3, $23,000,000)

   On 31 October 20X4, the Company retired its 1,974,600 outstanding fixed/floating rate, cumulative, redeemable, retractable preferred shares Series B at a redemption price of $26 per share. Holders of such shares had the right to convert each share into 1.3 common shares of the Company, at a conversion price of $22.14 or to receive the redemption price. All Series B shares were surrendered for payment. Prior to 31 October, dividends of $1.25 per share had been paid; $0.625 on 30 April and $0.625 on 31 October. These shares had been classified as a liability.

3. Preferred Shares, Series D $30,000,000

   The Company had Series D preferred shares Series D outstanding at 31 December 20X4. Holders are entitled to dividends at a fixed rate of 6% until 31 March 20X5. Thereafter, the dividend rate is determined with reference to the one month bankers' acceptance rates, by the Company with the consent of the holders, or failing such consents being obtained, by solicitation of bids from investment dealers, or auction. The shares are convertible, at the shareholder's option, at a conversion price of $25.16 between 31 December 20X8 and 31 December 20X14. Dividends of $1,800,000 were paid in 20X4.

4. Stock Options

   On 1 May 20X4, 435,000 common shares were issued under the terms of the options granted under the Company's stock option plan at a price of $18 per share. On 31 December 20X4, the Company granted five-year options on 500,000 common shares, exercisable at $23 per share. At 31 December 20X4, options on 1,200,000 shares were also outstanding at a price of $14, for periods up to 31 December 20X11. These options had been granted in 20X3.

   In 20X4, common shares closed at a market value of $30. Quarterly averages were $20, $26, $12, and $25 for the four quarters of the year, respectively.

5. Summary of common share transactions

Common shares, 31 December 20X3	98,789,500
Under stock option plan	435,000
Common shares, 31 December 20X4	99,224,500

Case 21-2
MKT Inc.

MKT Inc. is a leading North American producer of complete retail store interiors, predominantly for growth-oriented retail chains with multiple stores. MKT Inc. is a public company. Sales in 20X6 were $109.6 million, down from the record $140.7 million in the prior year. Income over the past five years has fluctuated between a low of a loss $5.4 million and a high of $7.9 million. In partnership with its customers, MKT is involved in many aspects of its customers' store fixturing programs for new stores and store remodellings. This can include providing conceptual design services, manufacturing, installation and comprehensive project management services. MKT Inc.'s customers include Armani, Blockbuster Entertainment, Canadian Tire, Circuit City, The Disney Stores, Eddie Bauer, Hugo Boss, Levi Strauss, and Calvin Klein.

The company is contemplating two transactions that will have an impact on the 20X7 financial statements. Management is especially concerned about the impact each will have on the financial statements and EPS disclosures. MKT's stock price has been quite volatile over the past 18 months, much to the dissatisfaction of management and the board. They complain that the markets focus too much on short-term results, and that EPS is a poor indication of some of the complexities of their business and financial results. They point out that they have heavy order backlogs, so that current-year EPS, which is relatively low, does not reflect their real prospects for positive cash flow in the future.

First, MKT Inc. plans to issue redeemable preferred shares, in the amount of $7,000,000. The shares are described as follows:

Class A Preferred Shares, non-voting	$7,000,000

The shares have a stated value of $100 each, and are redeemable at the price of $110 per shares at any time. The shares are entitled to a cumulative dividend of $7 per share, payable quarterly until 20X11, when the dividend increases to $12 per year until 20X13, after which it becomes $17 per share.

Second, MKT plans to call (for redemption) a second issue of preferred shares. Since the shares are also convertible, and the market value of the common shares is higher than the redemption price, all preferred shareholders are expected to convert their shares rather than accept the cash redemption price.

Class C Preferred Shares, non-voting	$4,000,000

Shares are entitled to a dividend of 5%, payable quarterly. Shares are convertible at the company's option into common shares at a conversion price of $8.50 per share between 31 December 20X3 and 31 December 20X7.

MKT plans to call these preferred shares some time in the second quarter of 20X1.

At the end of 20X0, MKT reported assets of $139 million, and equity of $32.7 million. They have basic EPS of $0.86 and diluted EPS of $0.65. The diluted EPS reflects the impact of existing employee stock options, convertible debt and Class C preferred shares.

Required:

Explain the effect of the two securities transactions under consideration on EPS in as much detail as possible.

ASSIGNMENTS

A21-1 Basic EPS: At the end of 20X6, the records of NFF Corporation reflected the following:

Bonds payable, 6%, nonconvertible		$1,000,000
Preferred shares, no-par, 90 cents, nonconvertible, noncumulative, outstanding during year, 80,000 shares		300,000
Common shares, no-par value:		
Outstanding 1 Jan., 600,000 shares	$1,680,000	
Sold and issued 1 April, 12,000 shares	30,000	
Issued 10% stock dividend, 30 Sept., 61,200 shares	180,000	1,890,000
Retained earnings (after effects of current preferred dividends declared during 20X6)		622,000
Income before discontinued operations		$ 282,000
Discontinued operations (net of tax)		(36,000)
Net income		$ 246,000

Preferred dividends declared, $46,000.
Average income tax rate, 40%.

Required:

1. Compute basic EPS.
2. Repeat requirement (1), assuming the preferred shares are cumulative.

A21-2 Weighted Average Common Shares: The following cases are independent.

Case A Albion Company has 2,450,000 common shares outstanding on 1 January. 200,000 shares were issued for land and buildings on 27 February, and another 300,000 shares were issued for cash on 1 August. A 2-for-1 stock split was distributed on 30 August.

Case B Bartle Corp. had 200,000 Series A shares and 400,000 Series B shares outstanding on January 1. Each non-voting Series A share has a $6 per share cumulative dividend and is convertible into two Series B shares. Series B shares are voting shares. During the year, 50,000 Series A shares and 40,000 Series B shares were issued for cash on 1 October. 75,000 Series B shares were retired for cash on 1 December.

Case C Carrion Company began the year with 433,000 common shares. An additional 100,000 common shares were issued for cash on April 30. 40,000 preferred shares were converted into common shares, at the rate of two-for-one, on 1 June. A 40% common stock dividend was declared and distributed on 1 November.

Required:

For each case, calculate the number of weighted average common shares to use in the calculation of basic EPS.

A21-3 Basic EPS for Three Years: Ramca Corporation's accounting year ends on 31 December. During the three most recent years, its common shares outstanding changed as follows:

	20X7	20X6	20X5
Shares outstanding, 1 January	150,000	120,000	100,000
Shares sold, 1 April 20X5			20,000
25% stock dividend, 1 July 20X6		30,000	
Two-for-one stock split, 1 July 20X7	150,000*		
Shares sold, 1 October 20X7	50,000		
Shares outstanding, 31 December	350,000	150,000	120,000
Net income	$375,000	$330,000	$299,000

* For each share turned in, two new shares were issued, so that the shares doubled.

Required:

1. For purposes of calculating EPS at the end of each year, for each year independently, determine the weighted average number of shares outstanding.
2. For purposes of calculating EPS at the end of 20X7, when comparative statements are being prepared on a three-year basis, determine the weighted average number of shares outstanding for each year.
3. Compute EPS for each year based on year computations in (2).

A21-4 Basic EPS: At the end of 20X6, the records of Security Systems Corporation showed the following:

Bonds payable, 7%, nonconvertible		$ 320,000
Preferred shares:		
Class A, no-par, 60 cents, nonconvertible, noncumulative, outstanding 60,000 shares		300,000
Class B, no-par, 70 cents, nonconvertible, cumulative, outstanding 30,000 shares		600,000
Common shares, no-par, authorized unlimited shares:		
Outstanding 1 January, 186,000 shares	$1,785,000	
Retired shares 1 May, 36,000 shares	(345,483)	
Issued a 300% stock dividend on 1 November, on outstanding shares (450,000 additional shares)	—	1,439,517
Retained earnings (no dividends declared)		1,710,000
Income before discontinued operations		$ 160,500
Discontinued operations, net of tax	10,000	
Net income		$ 170,500
Average income tax rate, 40%.		

Required:

Compute basic EPS. Show computations.

A21-5 Basic and Diluted EPS: Information from DEF Company's 31 December 20X8 balance sheet is as follows:

10% bonds payable, $275,000 par value, maturing 31 December 20X12, each $1,000 bond convertible into 30 common shares	$ 246,000
6% bonds payable, $1,250,000 par value, maturing 31 December 20X10, each $1,000 bond convertible into 50 common shares	1,006,000
Common stock conversion option, re: bonds	285,000

Preferred shares, $2.50, no-par value, non-cumulative, convertible at one preferred share for two common shares, 50,000 shares outstanding	1,375,000
Common shares, no-par value, 273,625 shares outstanding	2,035,770

Additional information:

- Dividends on the preferred shares were declared on December 15, but were unpaid at year end.
- Net income for 20X8, $600,000; includes $26,200 interest expense on 10% bonds and $71,500 interest expense on 6% bonds.
- Income tax rate for 20X8, 30%.
- Both bonds were outstanding for the entire year, as were the preferred shares.
- There were 251,500 shares outstanding at the beginning of the period.

  Share transactions: 31 May — 2,750 shares were retired at a cost of $37,500
  31 October — 10% common stock dividend issued.

Required:

Compute all appropriate earnings per share amounts.

[CGA-Canada, adapted]

A21-6 Multiple Common Share Classes: Marcos Systems has two classes of voting shares. Class A shares have ten votes per share, while Class B shares have one vote per share. Both participate in the distribution of net assets in the event of dissolution. There were 2,000,000 Class A shares outstanding in 20X5, and 6,000,000 Class B shares.

Class A shares are entitled to dividends as declared, in the amount of $2 per share, before the Class B shares receive any dividends. After the Class A dividend, Class B shares will receive dividends as declared up to $1 per share. If any dividends are declared above this amount, they are to be split evenly between the two classes, on a per share basis.

In 20X5, net income was $16,400,000, and dividends of $10,000,000 were declared and paid.

Required:

1. Determine basic EPS for each share class for 20X5.
2. Repeat requirement (1) assuming that excess dividends, if any, are split on a per share basis between the two classes such that Class A shares receive two times the Class B entitlement.

A21-7 Multiple Common Share Classes: Electronics Ltd. reported $656,000 of net income after tax in 20X4, and paid a total of $280,000 in dividends on 31 December. At the end of 20X4, Electronics reported the following in the disclosure notes:

Share capital

Class A, authorized, 100,000 shares, issued and outstanding all year, 40,000 shares. Class A shares are voting shares with a residual interest in assets. Class A shares are entitled to a base dividend of $2 per share. Dividends declared above the base level ($2 for Class A and $0.40 for Class B), are distributed between the two share classes. Class A receives "extra" dividends at the rate of ten times the "extra" dividend on Class B common shares. Class A shares have four votes per share.

Class B shares, authorized, unlimited shares, issued and outstanding all year, 500,000 shares. Class B shares are voting shares with a residual interest in assets. Class B shares are entitled to a base dividend of $0.40 per share. Dividends declared above the base level ($2 for Class A and $0.40 for Class B) are distributed between the two share classes as described above. Class B shares have one vote per share.

Required:

1. Calculate basic EPS for 20X4.
2. Repeat requirement (1) assuming that the base dividend is $2 for Class A and $0.50 for Class B, and "extra" dividends are split based on Class A receiving four times any Class B dividend. Assume for this requirement that dividends paid were $330,000.

A21-8 Diluted EPS, Actual Conversions: Waves Sound Solutions (WSS) reports the following calculations for basic EPS, for the year ended 31 December 20X4:

Numerator:	Net income, $18,600,000, less preferred dividends of $1,500,000
Denominator:	Weighted average common shares outstanding, 6,240,000
Basic EPS:	$2.74 ($17,100,000 ÷ 6,240,000)

Case A Assume that WSS had 800,000 convertible preferred shares outstanding at the beginning of the year. Each share was entitled to a dividend of $2.00 per year, payable $.50 each quarter. After the third quarter dividend was paid, 200,000 preferred shares converted, per the share agreement, to 600,000 common shares. The information above regarding dividends paid and the weighted average common shares outstanding properly reflects the conversion for the purposes of calculating basic EPS.

Case B Assume instead that WSS had non-convertible preferred shares outstanding in 20X4, on which dividends of $1,500,000 were paid. Also assume that WSS had convertible bonds outstanding at the beginning of 20X4. On 1 November, the entire bond issue was converted to 2,400,000 common shares, per the bond agreement. The information above regarding net income properly reflects interest expense of $291,667 to 1 November. The weighted average common shares outstanding also reflects the appropriate common shares for the conversion. The tax rate is 30%.

WSS also had options outstanding at the end of the fiscal year, for 500,000 common shares at an option price of $15. The average common share price was $28 during the period.

Required:

Calculate diluted EPS for Case A and Case B, independently.

A21-9 Basic and Diluted EPS: At the end of 20X7, Info Solutions Ltd.'s records reflected the following:

Bonds payable, 10%, $600,000 par value, issued 1 January 20X0; entirely converted to common shares on 1 December 20X7; each $1,000 bond was convertible to 110 common shares;	$ 0
Preferred shares, 50 cents, convertible two-for-one into common shares, cumulative, nonparticipating; shares issued and outstanding during year, 30,000 shares	390,000
Common shares, no-par, authorized unlimited shares; issued and outstanding throughout the period to 1 July 20X7, 150,000 shares. 300,000 shares were sold for cash on 1 July 20X7, additional shares were also issued on 1 December when bondholders converted.	2,820,000
Common stock conversion rights, related to 10% bonds payable, above	0
Retained earnings (no dividends declared during year)	1,710,000
Net income (after $47,250 of interest expense to 1 December on convertible bonds, above)	366,000
Average tax rate, 30%.	

Required:
Compute the required EPS amounts. Show computations and round to two decimal places.

A21-10 Basic and Diluted EPS: XYZ, a public company, is required to disclose earnings per share information in its financial statements for the year ended 31 December 20X6. The facts about XYZ's situation are as follows:

a. At the beginning of the year, 450,000 common shares, issued for $5.75 million, were outstanding. The authorized number of common shares is 1 million. On 1 January, 50,000 $1 cumulative preferred shares were also outstanding. They had been issued for $500,000.
b. On 30 September, XYZ issued 100,000 common shares for $1.5 million cash.
c. On 1 January 20X7, XYZ made a private share placement of 25,000 common shares, raising $350,000 cash.
d. XYZ reported net income of $2.5 million for the year ended 31 December 20X6.
e. At 1 January 20X6, XYZ had outstanding $1 million (par value) of 8% convertible bonds ($1,000 face value), with interest payable on 30 June and 31 December of each year. Each $1,000 bond is convertible into 65 common shares, at the option of the holder, before 31 December 20X11. On 30 June 20X6, $400,000 (par value) bonds were converted. The original proceeds of the bond were allocated between the bond and an equity account, common stock conversion rights. Bond interest expense of $59,750 was recognized this year, including discount amortization. Of this amount, $14,900 related to the converted bonds for the first half of the year.
f. XYZ has options outstanding for 50,000 common shares at a price of $5 per share. The average market value of common shares during the period was $20.
g. XYZ has an effective tax rate of 40%.

Required:
Calculate the basic and diluted earnings per share figures for 20X6.

[CGA-Canada, adapted]

A21-11 Basic and Diluted EPS: Accounting staff at Pizaro Corp. have gathered the following information:

- Common shares outstanding on 31 December 20X4, 100,000.
- A 2-for-1 stock split was distributed on 1 February 20X4.
- 70,000 common shares were sold for cash of $50 per share on 1 March 20X4.
- CT purchased and retired 10,000 common shares on 1 June 20X4.
- 12,500 Series ii options were issued in 20X1, originally allowing the holder to buy one share at $25 for every option held beginning in 20X8. Terms of the options were adjusted for the split in February.
- Pizaro has $1,000,000 par value convertible bonds outstanding. There is $173,000 in a common stock conversion rights account with respect to the bonds. Each $1,000 bond was originally convertible into 30 common shares. Terms were adjusted for the split in February. Interest expense on the bond, including discount amortization of $12,000, was $104,000 in 20X4. The bonds are convertible at any time before their maturity date in 20X18.
- Net income in 20X4 was $215,000.
- The tax rate was 40% and the average common share price in 20X4, after being adjusted for the split, was $20.

Required:
Calculate all EPS disclosures for 20X4. Note that there were 100,000 common shares outstanding at the *end* of the fiscal period and calculations must work backwards from this date.

A21-12 EPS Computation: On 1 January 20X6, NOW Ltd. had the following items in shareholders' equity:

Class A non-voting shares, 900,000 authorized, 660,000 issued and outstanding; $2 per share cumulative dividend, redeemable at the company's option at a price of $18 per share; each Class A share convertible to 8 Class B shares; issued at stated value of $15 per share.

Class B voting shares, entitled to net assets on dissolution, 2,000,000 authorized, 970,000 issued and outstanding, issued at $4 per share.

Retained earnings: $3,445,000.

Due to a shortage of cash, no dividends had been declared on either class of shares for the past two years. However, in 20X6, all arrears were cleared up on the Class A shares and current dividends were paid — a total of $3,960,000 in dividends.

There was a stock option (class B) outstanding to the president of the company: 600,000 shares at an exercise price of $6 per share. This was exercisable after 1 July 20X12. During the year, the following occurred:

a. Net income for the year was $2,714,000. The tax rate was 40%.
b. Class B shares sold for an average of $5 per share during the year.
c. On 1 April 20X6, the company sold 90,000 Class B shares for $17.50 per share. Another 75,000 Class B shares were issued on 1 December for $11.75 per share.
d. An additional stock option (Class B) of 250,000 shares at an exercise price of $3 per share was given to the president of the company on 1 April. This was exercisable after 1 July 20X18.

Required:

Prepare the earnings per share section of the income statement.

[CGA-Canada, adapted]

A21-13 EPS Computation: At the end of 20X6, the records of Learning Library Corporation showed the following:

Bonds payable, Series A, 7%, each $1,000 bond is convertible to 40 common shares after stock dividend (par value, $200,000), net of discount		$ 167,200
Bonds payable, Series B, 6%, each $1,000 bond is convertible to 90 common shares after stock dividend (par value, $1,000,000), net of discount		942,000
Preferred shares, no-par, $1, noncumulative, nonconvertible; issued and outstanding throughout the year, 40,000 shares		1,100,000
Common shares, no-par, authorized unlimited number of shares: Outstanding, 1 January, 440,000 shares	$1,650,000	
Shares retired, 1 June, 2,200 shares at a cost of $15,000; book value	(8,250)	
Stock dividend issued, 1 November, 43,780 shares (10%, 1 additional share for each 10 shares outstanding)	394,020	2,035,770
Common share conversion rights		43,900
Retained earnings (no cash dividends declared during the year)		942,000
Income before discontinued operations		$ 426,000
Discontinued operations (net of tax)		50,000
Net income		$ 476,000

Net income includes interest expense of $17,200 on Series A bonds payable, and interest expense of $72,600 on Series B bonds.
Average income tax rate for the year, 30%.
Both bond series were issued prior to 1 January 20X6.

Required:
Prepare required EPS presentation with all supporting computations.

A21-14 EPS Computations, Financial Instruments: Gridlock Limited reported $6,100,000 of net income for the 20X6 fiscal year, after a loss from discontinued operations of $2,300,000. Income before discontinued operations was $8,400,000. Net income amounts are reported before preferred dividends. No dividends were declared in 20X6. The average common share price was $12 during the period, and the tax rate was 35%.

Gridlock reported the following financial instruments as part of its capital structure at the end of 20X6:

1. 2,457,500 common shares outstanding. Of these, 1,250,000 had been issued for cash on 1 April 20X6.
2. 500,000 preferred shares, with a $3 per share cumulative dividend. The preferred shares were redeemable at the company's option in 20X12.
3. $3,400,000 of bonds payable, convertible beginning in 20X19 into a total of 200,000 common shares at the option of the company. The bonds are reported as $2,100,000 of interest liability and $1,300,000 of equity. During the year, interest expense of $200,000 was reported, and a $140,000 after-tax capital charge related to the bond was recorded directly to retained earnings.
4. $5,000,000 of bonds payable, convertible into 60,000 common shares beginning in 20X12 at the option of the investor. The bonds are reported as a liability, with a discount, and as an element of equity. Interest paid this year was $300,000, and there was $75,400 of discount amortization recorded.
5. Options outstanding at the end of the year: 100,000 shares at an option price of $15, exercisable beginning in 20X7; 400,000 shares at an option price of $8, exercisable beginning in 20X12; 300,000 shares at an option price of $20, exercisable beginning in 20X13.

Required:
Calculate required EPS disclosures.

A21-15 Basic and Diluted EPS; Extraordinary Loss Effect: The Magazine Corporation (TMC) had the following items in shareholders' equity at 31 December 20X7:

Preferred shares, A, $2.80, no-par, cumulative shares; redeemable at $14.50 per share; authorized 100,000 shares; outstanding 50,000 shares	$ 700,000
Preferred shares, B, $4.20, no-par, cumulative shares; redeemable at $21.50 per share; convertible at the rate of 1 preferred share for 1 common share; authorized 200,000 shares; outstanding 80,000 shares	$1,680,000
Common shares, no-par value, authorized 2,000,000 shares; outstanding 600,000 shares	$ 7,500,000

The following information was available in other parts of the annual report:

- Stock options outstanding:

  Series 1, $21 per share exercise price and 50,000 shares, exercisable after 1 January 20X8
  Series 2, $40 per share exercise price and 100,000 shares, exercisable after 1 January 20X10

- TMC had net income of $1,540,000 in 20X7. Income before extraordinary loss was $4,540,000, and there was an extraordinary loss, after tax, of $3,000,000.

- 80,000 common shares were issued for $2,576,000 on 28 February 20X7.
- No dividends were paid in 20X7. The tax rate was 40%.
- Average common share price during the year was $35.

Required:

Calculate all required earnings per share disclosure. Explain why diluted EPS for net income is higher than basic. Note that there were 600,000 common shares outstanding at the *end* of the fiscal period and calculations must work backwards from this date.

[CGA-Canada, adapted]

A21-16 Basic and Diluted EPS: Perfume Inc. had the following securities outstanding at 1 January 20X8:

Preferred shares, $4, no-par value, cumulative convertible shares; authorized 500,000 shares; outstanding 200,000 shares	$15,000,000
Common shares, no-par value; authorized 6,000,000 shares; outstanding 2,000,000 shares	$10,500,000

The preferred shares are convertible into common shares on a one-for-one basis (as of 1 January; to be adjusted for stock splits or stock dividends) and pay semi-annual dividends 30 June and 31 December. During 20X8, Perfume reported net income of $54,400,000 and had the following transactions:

- 31 March: A common stock dividend of 10% was declared and issued.
- 28 June: 450,000 common shares (market value $5,400,000) were issued to acquire a competitor company.
- 1 July: One-quarter of the preferred shares were converted to common.
- 30 September: 90,000 common shares were purchased for $13 each and retired.

The tax rate for 20X8 was 40%.

Required:

1. Compute basic earnings per share for 20X8.
2. Compute diluted earnings per share for 20X8.

[CGA-Canada, adapted]

A21-17 EPS Computations, Financial Instruments: On 31 December 20X3, the capital structure of Vachon Varieties Ltd. was as follows:

- $1,500,000 face value of 12% debentures, due 1 April 20X10, convertible into 8 common shares per $1,000. Interest on the 12% debentures is paid on 1 April and 1 October of each year. On 4 April 20X3, 12% debentures with a face value of $500,000 had been converted. Interest expense on these bonds was $16,000 in 20X3. Interest expense on all the 12% bonds amounted to $208,000, including the $16,000.
- $1,000,000 face value of 12.4% debentures, due 30 June 20X15, convertible into 8 common shares per $1,000 after 30 June 20X7. Interest expense related to these bonds was $140,000 in 20X3. Interest is paid on 30 June and 31 December of each year. There was an after-tax capital charge of $15,000 related to the bonds, charged directly to retained earnings.
- 10,000 cumulative preferred shares issued and outstanding, $8 per share dividend, callable at the shareholder's option at $100 per share. These preferred shares are classified as debt.
- 20,000 common shares issued and outstanding.

Vachon Varieties reported net income before tax and any preferred dividends of $500,000 for 20X3. The tax rate was 40%.

Required:
Compute the earnings per common share for 20X3.

A21-18 Basic and Diluted EPS: Carlsburg Corporation is developing its EPS presentation at 31 December 20X7. The records of the company provide the following information:

Liabilities		
Convertible bonds payable, 7% (each $1,000 bond is convertible to 160 Class C shares)		$ 450,000
Less: discount		20,400
		429,600
Shareholders' Equity		
Class A shares, no-par, nonvoting, 60 cents, cumulative, convertible (each share is convertible into .25 of 1 Class C share); authorized, unlimited shares; outstanding during 20X7, 15,000 shares		195,000
Class B shares, no-par, nonvoting, $1, cumulative, authorized unlimited number of shares		
Outstanding 1 January, 60,000 shares	150,000	
Sold and issued on 30 September, 15,000 shares	45,000	195,000
Class C shares, no-par, voting		
Outstanding 1 January, 177,000 shares	$642,000	
Sold and issued 30,000 shares on 1 April	120,000	762,000
Class C share options outstanding (for 12,000 shares)		6,000
Common share conversion rights		63,600
Retained earnings, end of year		1,356,000

Additional data:

a. Stock options — option price, $4 per share; average market price of the Class C shares during the year, $6.
b. Convertible bonds — interest expense in 20X7, $34,200.
c. Average income tax rate, 30%.
d. Net income, 20X7, $390,000. Preferred dividends were declared on 31 December 20X7.

Required:
Prepare the required EPS income statement presentation for 20X7. Show all computations.

A21-19 Diluted EPS: In 20X4, Cuba Imports Inc. (CII) had a net income of $1,800,000, and paid $450,000 in preferred dividends and $200,000 in common dividends. During 20X4, 450,000 common shares were outstanding on average. The following elements are part of CII's capital structure:

1. CII had 40,000 options outstanding at the end of 20X4 to purchase a total of 40,000 common shares at $25 for each option exercised. The average quarterly market value of common shares was $40, $15, $20, and $35.
2. CII had $5,000,000 (par value) of 11% bonds payable outstanding for the year. The bonds are convertible into common shares at the rate of 20 shares for each $1,000 bond. None of the bonds actually converted during the period. Bond interest expense was $562,000 this year.
3. CII had 300,000 preferred shares outstanding during the entire year. These cumulative preferred shares were entitled to a yearly dividend of $1.50 per share, paid quarterly, and were convertible into common shares at a rate of 2-for-1 for the next five years, and subsequently at a rate of 1-for-1. No conversions took place during the year.

The tax rate is 40%.

Required:

1. Calculate the individual effect for each potentially dilutive element listed above. For options, calculate shares issued and shares retired, by quarter, where dilutive.
2. Compute basic and diluted EPS.
3. Repeat requirement (2) assuming that CII reported a net loss of $200,000.

A21-20 Diluted EPS: The Maple Corporation has the following items in its capital structure at the end of 20X7:

a. Preferred shares, $4, cumulative, no-par, convertible into common shares at the rate of 10 shares of common for each preferred share. Shares were outstanding for the entire year. Dividends were declared quarterly. Seven thousand shares were outstanding for the whole year.
b. Preferred shares, $5, cumulative, no-par, convertible into common shares at the rate of three shares of common for each one preferred share. Eight thousand shares were outstanding. Dividends were declared quarterly, starting 30 June.
c. Options to purchase 400,000 common shares were outstanding for the entire period. The exercise price is $17.50 per share. The average common share price during the period was $40.
d. $2 million par value of 9% debentures, outstanding for the entire year. Debentures are convertible into five common shares for each $100 bond. Interest expense of $190,000 was recognized during the year.
e. $8 million par value of 11.5% debentures, outstanding for the entire year. Debentures are convertible into a total of 320,000 common shares. Interest expense of $960,000 was recognized during the year.

Required:

1. Calculate the individual effect for diluted EPS for each of the above items. The tax rate is 45%. For options, calculate shares issued and shares retired.
2. Assume Maple reported basic EPS before extraordinary items of $1.24 (($1,000,000 − $28,000 − $40,000) ÷ 750,000), an extraordinary gain of $1.00 ($750,000 ÷ 750,000) and EPS for net income of $2.24 (($1,750,000 − $28,000 − $40,000) ÷ 750,000). Calculate diluted EPS, and show how it would be presented on the income statement.

A21-21 EPS Computation, Bonds: At the end of 20X6, the records of Russo Corporation reflected the following:

Bonds payable, par value $300,000. Each $1,000 bond is convertible at the investor's option to 60 common shares after the stock split on 1 Feb. 20X6. At the beginning of the year, $400,000 of par value was outstanding but $100,000 par value bonds converted to common shares on 1 December. Bond is shown net of discount.	$287,000
Preferred shares, 50 cents, cumulative, nonparticipating; shares issued and outstanding at the beginning of the year, 10,000 shares. Shares are convertible into common shares, 10-for-1 after the stock split, and all shares converted on 31 December after the dividend was declared.	0
Common share conversion rights, re: convertible bonds	17,500
Common shares, no-par, authorized unlimited shares; issued and outstanding throughout the period to 1 Feb. 20X6, 60,000 shares. A stock split was issued 1 Feb. 20X6 that doubled outstanding shares. Shares were issued on the bond conversion on 1 December. Interest was paid to the conversion date. An additional 100,000 shares were issued on 31 December on conversion of preferred shares.	970,000
Retained earnings	570,000

Income before extraordinary items (after interest expense of $43,080, including $10,080 on the converted bonds)	$ 86,000
Extraordinary loss (net of tax)	(14,000)
Net income	$ 72,000

Average income tax rate, 30%.

Required:
Compute the required EPS amounts and show how they would be presented on the income statement.

A21-22 Loss per Share: Mangusso Corporation's balance sheet at 31 December 20X6, reported the following:

Accrued interest payable	$ 2,400
Long-term notes payable, 10%, due in 20X9	200,000
Bonds payable, par value $1,800,000, 8%, each $1,000 of face value is convertible into 90 common shares; bonds mature in 20X13, net of discount	1,640,000
Preferred shares, no-par, $5, nonconvertible, cumulative (15,000 shares outstanding at year-end)	700,000
Common shares, 540,000 shares outstanding	2,400,000
Common stock conversion rights	118,000
Net loss for 20X6	(325,000)

Additional data:

a. During 20X6, 3,000 preferred shares were issued at $50 on 1 July. Dividends are paid semi-annually, on 31 May and 30 November.
b. Common share rights outstanding entitling holders to acquire 140,000 common shares at $9 per share.
c. Interest expense on the convertible bonds was $165,000 in 20X6.
d. Income tax rate is 30%.
e. Common share price at the end of each quarter of the fiscal year: $5, $7, $2, $10, respectively.

Required:
Compute the EPS amount(s) that Mangusso should report on the income statement for 20X6.

A21-23 EPS Computation: MacDonald Corp. had the following securities outstanding at its fiscal year-end 31 December 20X7:

Long-term debt:	
Notes payable, 14%	$4,500,000
8% convertible debentures, par value, $2,500,000, net of discount	2,410,000
9.5% convertible debentures, par value, $2,500,000, net of discount	2,452,000
Preferred shares, $5, no-par, cumulative convertible shares; authorized, 100,000 shares; issued, 30,000 shares	4,700,000
Common shares, no-par; authorized, 5,000,000 shares; issued, 600,000 shares	2,000,000
Common share conversion rights	189,000

Other Information:

a. No dividends were declared in 20X7.
b. 20X7 net income was $790,000. Interest expense was $216,000 on the 8% debentures, and $250,000 on the 9.5% debentures

c. Options are outstanding to purchase 200,000 common shares at $11 per share beginning in 20X15
d. Options were issued on 1 May 20X7 to purchase 50,000 common shares at $27 per share in 20X9. The price per share becomes $25 in 20X10, and $20 in 20X11. The options expire at the end of 20X11.
e. The preferred shares are convertible into common shares at a rate of nine for one. They were issued on 1 October 20X7.
f. Both convertible debentures are convertible at the rate of seven shares for each $100 bond.
g. The tax rate is 40%; common shares sold for an average of $40 during the year.
h. No common shares were issued or retired during the year.

Required:
Calculate all EPS disclosures.

A21-24 Computing Basic and Diluted EPS: XTra Inc. needs to establish its EPS figures for its 20X7 reports. The following information is available to Frankie Smith, XTra's controller:

a. Net income: $96,000,000; net income before tax, $160,000,000.
b. Class A common shares, voting with one vote per share, unlimited shares authorized, 16,000,000 shares outstanding 1 January.
c. Cumulative convertible preferred shares: 2,000,000 shares issued 1 August 20X2, and outstanding 1 January 20X7. Issued at $50 a share with a yearly $4 cumulative dividend paid semiannually 30 June and 31 December. The shares are convertible on a share-for-share basis with Class A shares adjusted automatically for any stock dividends or splits.
d. 30 June: After the semiannual dividend was paid, 75% of the preferred shares converted.
e. 1 April: Zorbas declared a 10% stock dividend on Class A shares.
f. 31 October: Zorbas purchased and retired 1,000,000 Class A shares for $54 per share.
g. All preferred dividends were paid on schedule. Common dividends of $3 per quarter were declared and paid.
h. Options were granted for 1,000,000 Class A shares on 31 December. The exercise price was $50, and the options expire in 20X16. The average share price during the period was $55.

Required:
Compute necessary EPS disclosures.

A21-25 EPS Interpretation: Many people believe that earnings per share is the single most relevant number financial statement readers examine. Together with earnings, it is also the most commonly reported statistic about a company's activities for the year. It is a complex calculation, as the following complaint indicates:

> I really don't understand why EPS calculations have to be checked so carefully by the auditors, or made so difficult to calculate. Why can't you just take net income and divide by the common shares outstanding at year-end?
>
> This year, we skipped a preferred dividend, but had to take it off for basic EPS anyway!
>
> We also issued shares during the period on preferred share conversion, as a stock split, and on the exercise of employee stock options. Some of these transactions were weighted to the day of issuance, but some weren't. Why did this happen?
>
> How understandable is it, if it's all so complicated?
>
> Finally, we had to disclose diluted EPS, due to some employee stock options still outstanding and a convertible bond issue. Yet no shares were issued for these things this year—and won't be issued in the near future, because of the terms of issue. Why report on events that haven't happened? I thought accountants were supposed to rely on transactions!

Required:
Write a brief response to the comments.

A21-26 Complex EPS: The following data relate to Freeman Inc.:

Year Ended 31 December 20X6	
From the Income Statement	
Net Income	$18,000,000
From the Balance Sheet	
Long-term debt:	
10% convertible debentures, due 1 October 20X13	$ 9,000,000
Shareholders' equity (Note 1)	
Convertible, callable, voting preferred shares of no-par value, 20-cent cumulative dividend; authorized 600,000 shares; issued and outstanding 600,000 shares	10,600,000
Common shares, voting, no-par, authorized 5,000,000 shares; issued and outstanding, 3,320,000 shares	13,700,000
Common stock conversion rights	375,000

Note 1
The 20-cent convertible preferred shares are callable by the company after 31 March 20X14, at $53 per share. Each share is convertible into one common share.

Options to acquire 500,000 common shares at $60 per share were outstanding during 20X6.

Other Information:

a. Cash dividends of 12.5 cents per common share were declared and paid each quarter.
b. The 10-year, 10% convertible debentures with a principal amount of $10,000,000 due 1 October 20X13, were issued 1 October 20X3. A discount of $200,000 was originally recorded. The discount is amortized on a straight-line basis. The discount is classified as a deferred charge on the balance sheet. Each $100 debenture is convertible into two shares of common. On 31 December 20X6, ten thousand $100 debentures with a total face value of $1,000,000 were converted to common shares. Interest was paid to the date of conversion, but the newly issued common shares did not qualify for the 31 December common dividend.
c. The 600,000 convertible preferred shares were issued for assets in a purchase transaction in 20X4. The dividend was declared and paid on 15 December 20X6. Each share is convertible into one common share.
d. Options to buy 500,000 common shares at $60 per share for a period of five years were issued along with the convertible preferred shares mentioned in (c).
e. At the end of 20X5, 3,300,000 common shares were outstanding. On 31 December 20X6, 20,000 shares were issued on the conversion of bonds.
f. A tax rate of 40% is assumed.
g. Common shares traded at an average market price of $75 during the year. Averages at the end of the four quarters were as follows: $100, $80, $50, $70.

Required:
Calculate all EPS disclosures.

A21-27 Complex EPS: Blue Company, a public company, was required to disclose earnings per share in its financial statements for the year ended 31 December 20X5. The facts about Blue Company's situation were as follows:

a. On 1 January 1 20X5, 336,000 common shares were outstanding. The authorized number of common shares was unlimited.
b. On 1 January 20X5, 10,000, $3 cumulative preferred shares were outstanding.

c. Options to purchase 20,000 common shares at $20 per share were outstanding all during 20X5. The options can be exercised beginning in 20X19.
d. On 1 September 20X5, Blue Company issued 36,000 additional common shares for cash.
e. Blue Company had $1,000,000 convertible bonds outstanding on 1 January 20X5 with interest payable on 1 June 1 and 1 December and each $1,000 bond convertible into 40 common shares. $600,000 of the bonds were converted into common shares on 1 June 20X5. Blue reported interest expense of $65,520, which included $25,200 on the converted bonds.
f. Unexercised employee stock options (which can be exercised beginning in 20X10) to purchase 30,000 common shares at $30 per share were granted on 1 October 20X5.
g. Blue Company reported 20X5 income from operations, after tax, of $750,000. The company also reported a before-tax gain from discontinued operations of $80,000.
h. Blue Company's effective income tax rate was 40%. The average common share price in 20X5 was $35 and was constant all year.
i. No dividends were declared in 20X5.

Required:

1. Prepare EPS presentations for 20X5. Show all computations.
2. It is said that diluted EPS relates more to the future than to the past. Explain.

A21-28 Complex EPS; Interpretation: Benstead Corporation reported net income in 20X5 of $2,345,000, after an after-tax loss from discontinued operations of $677,800. Income before discontinued operations was $3,022,800. The tax rate was 30%.

Benstead had the following securities outstanding:

a. Benstead had 325,000 $1.20 no-par cumulative preferred shares outstanding during the period. These shares were convertible into Class A common shares 4-for-1 at the option of the investor. All preferred shares converted to Class A common shares on 31 December after the preferred dividend was paid.
b. Benstead had $6,000,000 of convertible bonds payable outstanding, convertible into Class A shares at the rate of 30 shares per $1,000 bond, at the option of the investor. This bond was recorded as an interest liability and equity item when issued. During the year, interest expense of $281,000 was recorded. A capital charge of $72,000, after tax, was recorded.

Benstead had 1,300,000 Class A common shares outstanding at the beginning of the year. On 1 February, the company repurchased 250,000 Class A common shares on the open market for $18 per share, and held them in the treasury. These shares were resold for $22 per share on 1 December.

At the beginning of the year, 100,000 options were outstanding, allowing senior management to purchase 100,000 Class A shares for $ 5 per share. On 1 September, 60,000 of these options were exercised, when the market value of the common shares was $19 per share. The average market value for the first eight months of the year was $15 per share. The remaining options are still outstanding and will expire in 20x10.

All preferred dividends, plus common dividends of $1 per share, were paid in 20X6.

At the end of 20X5, another 400,000 options, for 400,000 Class A shares at a price of $24, were issued to management. These options have an expiry date of 20X15. The average common share price for the entire year was $22 per share.

Required:

1. Calculate required EPS disclosures.
2. Interpret the EPS calculations provided.
3. Assume that Benstead also reports cash flow per share, based on net income plus non-cash charges, divided by the weighted average common shares outstanding, of $7.24. Interpret this information, in comparison to EPS.

A21-29 Basic, Diluted EPS; Split: At 31 December 20X6, Royal Ltd. had the following items on the balance sheet:

Preferred shares, Class A, nonvoting, cumulative, par $10, $2 dividend per share, redeemable at par; 100,000 authorized, 60,000 issued	$ 500,000
Preferred shares, Class B, voting, cumulative, par $15, $3 dividend per share, redeemable at par plus 20%; convertible at the rate of one preferred share to two common shares; 200,000 authorized, 90,000 issued	1,200,000
Common shares, voting; 1,000,000 authorized, 700,000 issued	5,357,000
Retained earnings (deficit)	(2,394,000)

The Class A preferred shares are redeemable in 20X11 at the investors' option, and are classified as a liability.

At 31 December 20X6, there were two common share stock options outstanding:

i. $15 per share exercise price and 80,000 shares
ii. $15 per share exercise price and 150,000 shares, able to be exercised after 1 July 20X18 and expiring on 1 July 20X20.

During 20X7, the following occurred:

a. Net income was $1,900,000, before any preferred dividends.
b. Common shares were issued on 1 March 20X7 when the $15 options described above were fully exercised.
c. The tax rate was 40%.
d. The average common share price during the period was $16, after giving effect to the stock split described in f. The average for January and February, before the split, was $40.
e. No dividends were declared or paid to any of the shareholders.
f. There was a three-for-one stock split of the common shares on 1 November. All outstanding shares, option contracts and conversion terms were adjusted accordingly.

Required:

Prepare the earnings per share section on the income statement for the year ended 31 December 20X7 in good form. [CICA, adapted]

A21-30 Complex EPS, Split: The shareholders' equity of Marsdon Corp. as of 31 December 20X6, the end of the current fiscal year, is as follows:

$1 cumulative preferred shares, no-par, convertible at the rate of two for one; 700,000 shares outstanding	$18,150,000
Common shares, no-par; 7,000,000 shares outstanding	30,000,000
Common stock conversion rights	331,000
Retained earnings	40,600,000

On 1 July 20X6, 300,000 preferred shares were converted to common shares at the rate of two for one.

During 20X6, Marsdon had 9% convertible subordinated debentures outstanding with a face value of $2,000,000. The debentures are due in 20X12, at which time they may be converted to common shares or repaid at the option of the holder. The conversion rate is ten common shares for each $100 debenture. Interest expense of $232,000 was recorded in 20X6.

The convertible preferred shares had been issued in 20X0. Quarterly dividends, on 31 March, 30 June, 30 September, and 31 December, have been regularly declared. The company's 20X6 net income was $8,200,000, after tax at 48%. Common shares traded for quarterly average prices of $10, $8, $11, and $22.

Marsdon had employee stock options outstanding all year. The options were to purchase 600,000 common shares at a price of $12 per share. The options become exercisable in 20X13.

On 6 January 20X7, Marsdon split its common shares four for one. All preferred, debt, and option contracts outstanding were adjusted accordingly.

Required:

Show the EPS presentation that Marsdon would include on its 20X6 income statement.

A21-31 Complex EPS, Reverse Split: Hyson Limited reported net income before income taxes and after income taxes of $14,000,000 and $8,400,000, respectively, before any preferred dividends. The company reported no discontinued operations or extraordinary items in its income statement for the current year ending 31 December 20X7. The following information is available:

a. As at 1 January 20X7, there were 1,350,000 common shares outstanding.

b. At the beginning of the current year, 400,000 stock options, to purchase 400,000 common shares at $15 per share, were outstanding. Sixty thousand shares were issued on 1 September 20X7, on the exercise of options. The company's common shares traded at an average of $20 per share during the year. Average share price to 1 September was $24. Average prices are pre-split.

c. A 12% convertible 20-year debenture with a principal amount of $20,000,000 has been outstanding for a number of years. When the bonds were issued, a discount of $500,000 was recognized. It is being amortized straight-line over the life of the bond. Interest payment dates are 1 April and 1 October each year. Each $1,000 debenture is convertible into 42 shares of common. The conversion ratio would change if there was a stock split or dividend. On 1 April 20X7, $14,000,000 of the outstanding debentures were converted.

d. For a number of years, 8% cumulative redeemable preferred shares in the amount of $8,000,000 have been outstanding. There was no change in this during 20X7. The shares are disclosed as a liability on the balance sheet.

e. On 1 October 20X7, 10% noncumulative convertible preferred shares in the amount of $6,000,000 were issued at face value of $100 per share. Each preferred share is convertible into one share of common. Dividends totaling $2.50 per share were declared in 20X7 on these preferred shares.

f. On 31 January 20X8 (before the completion of the 20X7 financial statements on 28 February 20X8), there was a reverse split of the common shares, one-for-two.

Required:

For the year ended 31 December 20X7, compute basic and diluted EPS.