

CHAPTER EIGHT

Answers to Self Test Questions

1. a) total demand for money: **\$140**
 (If GDP = \$800 then transactions demand = 10% x \$800 = \$80; and if r = 10%, asset demand is \$60, so total demand = \$140.)
 b) Surplus of \$10.

2. See the table below:

Interest Rate %	Asset Demand for Money	Transactions Demand for Money	Total Demand for Money
12	50	80	130
11	55	80	135
10	60	80	140
9	65	80	145
8	70	80	150
7	75	80	155
6	80	80	160

- a) 8%
- b) equilibrium interest rate: 10%
- c) Surplus of money of \$15

3. If prices increase, so too will money demand, which will **push up interest rates** and cause a **drop in investment** and real GDP. The aggregate demand curve, however, will not shift, but the **aggregate quantity demanded will decrease**, i.e., *the price change causes a movement along the AD curve, not a shift in it.*

4. A reduction in the money supply will cause interest rates to rise and this will cause a **decrease in investment and real income.**

5. a) velocity of money: 10 (2 x 500 ÷ 100)
 b) P = \$2.40 (120 x 10 ÷ 500)

Answers to Study Guide Questions

1. False: it is determined by their *nominal GDP*
 2. True
 3. False: it is determined by the *demand and supply of money*
 4. True
 5. False: the Bank of Canada does *not* automatically adjust the money supply to ensure that it always equals the demand.
 6. True
 7. False: it refers to the way changes in interest rates *cause changes in investment and real GDP*.
 8. True
 9. False: refers to the number of times *money changes hands* in a year.
 10. True
- | | | | | |
|-------|-------|-------|-------|-------|
| 11. a | 16. a | 21. d | 26. a | 31. d |
| 12. b | 17. c | 22. d | 27. a | 32. c |
| 13. a | 18. c | 23. a | 28. c | 33. d |
| 14. b | 19. a | 24. a | 29. d | 34. e |
| 15. c | 20. a | 25. a | 30. a | 35. b |

36. Key Problem

a) **Shortage of \$10B of money. Surplus of \$15B of goods and services.**

If Everton's GDP is \$350, then the transactions demand is 20% of \$350 = \$70. If the rate of interest is 11%, Table 8.2 shows that the asset demand would be equal to \$30. The total demand from both sources, therefore, is \$100. Since the supply of money is only \$90, the quantity demanded of money exceeds the quantity supplied by \$10 billion.

In general, equilibrium in the product market implies that total leakages equal total injections. Since Everton has no international trade and no government intervention, this means that savings would equal investment at equilibrium. If GDP is \$350, Text Table 8.4 shows that savings would be \$70. If the interest rate is 11%, Text Table 8.3 says that investment spending would equal \$55. Savings would exceed investment which would mean that there would be a surplus of products of \$15 billion. Another way of looking at equilibrium in the real market is that it implies that GDP will equal aggregate expenditures. If GDP is \$350 and savings is \$70, then consumption must be \$280. If the interest rate is 11%, investment spending equals \$55. Aggregate expenditures (C + I) at a GDP of \$350 are equal to \$335. This, again, says that there is a surplus of \$15 worth of products.

b) **GDP = \$250B and the interest rate = 10%.**

The table below identifies pairs of interest rates and GDP levels that would give equilibrium in the money market.

Rate of Interest	Asset Demand	To equal the money supply of 90 transactions demand must equal:	Which means that GDP must equal (5 times transactions demand):
6%	80	10	50
7	70	20	100
8	60	30	150
9	50	40	200
10	40	50	250
11	30	60	300
12	20	70	350
13	10	80	400

The next table below identifies pairs of interest rates and GDP levels that give equilibrium in the product market:

At rate of interest	Investment spending is:	Therefore savings must equal:	And therefore GDP must be:
6%	\$80	80	450
7	75	75	400
8	70	70	350
9	65	65	300
10	60	60	250
11	55	55	200
12	50	50	150
13	45	45	100

Now all that we need to do is find a pair of interest rates and GDP levels which will give equilibrium in both markets. We can see that this would occur at an interest rate of 10% and GDP level of \$250.

c) **\$90 billion**

At an interest rate of 10%, the asset demand for money is \$40, and at a GDP of \$250, the transactions demand is \$50, giving a total of \$90 billion.

- d) **GDP rises \$50B to \$300B and the interest rate drops 1% to 9%.**

This is found by amending the first of the two tables in b).

Rate of Interest	Asset Demand	To equal the money supply of 110 transactions Demand must equal:	Which means that GDP must equal: (5 times Transactions demand):
6%	\$80	30	150
7	70	40	200
8	60	50	250
9	50	60	300
10	40	70	350
11	30	80	400
12	20	90	450
13	10	100	500

To find the new equilibrium values we compare this table with the second table in b) to find a pair of interest rates and level of GDP which gives simultaneous equilibrium in the two markets. We see that this occurs at an interest rate of 9% and GDP level of \$300.

- e) **Interest rate** ↓ **investment** ↑ **GDP** ↑

37. a) **77 million drams** (nominal GDP is $P \times Q = 1.1 \times 7 = 77$)

b) **12.1 million drams.**

(the money supply must rise by the same 10% that GDP has increased: $11 \text{ million} + 10\% = 12.1$)

38. a) **504 billion gelts** (nominal GDP is real GDP of 420 x the price level of 1.2)

b) **14** (the velocity of money is $504 \div 36$)

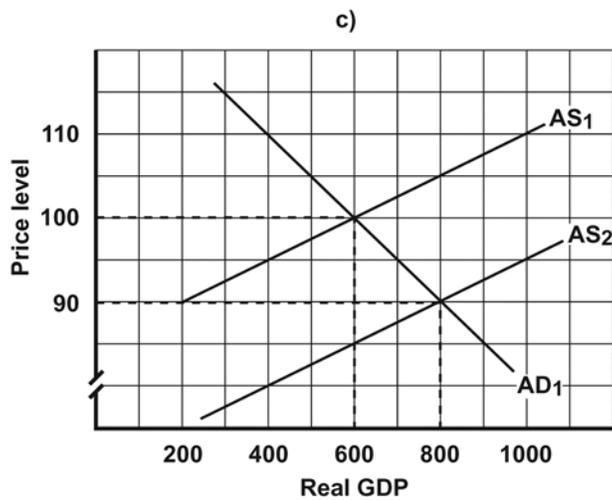
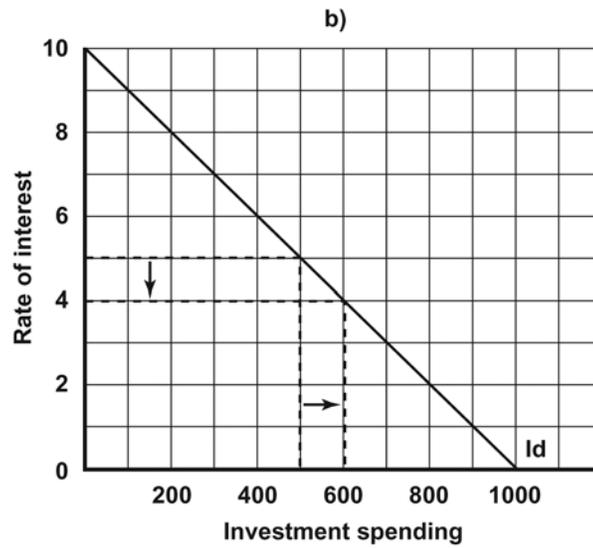
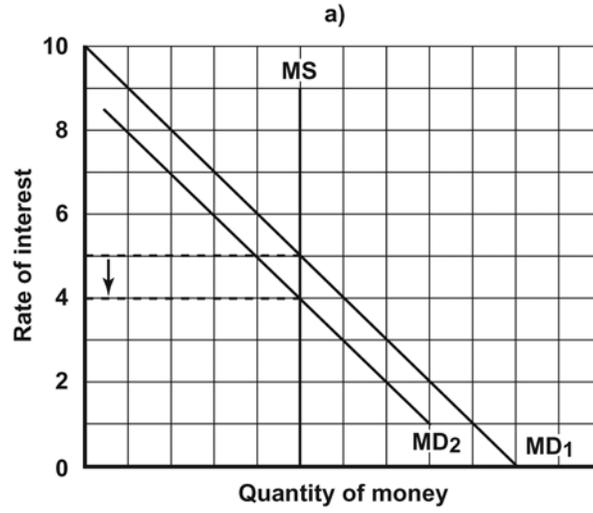
c) **560 billion gelts** (nominal GDP is 40×14)

39. **V = 10.7** (nominal GDP is $873 \times 108.7 \div 100 = 948.95$ and this figure $\div 88.4 = 10.7$)

40. a) price level = **2**; nominal GDP = **200**
b) price level = **2.4**; nominal GDP = **240**
c) Since a 20% increase in the price level leads to the same percentage increase in nominal GDP, we can conclude that there is a direct relationship between the two.
41. \$10 300
42. a) surplus of money of \$20B
b) surplus of goods and services of \$30B
c) GDP = 400; interest rate = 8%
d) GDP = 350; interest rate = 10%
e) money supply = \$140
43. a) decrease of 3%
b) increase by 40
c) an increase of \$100
d) no

44. a) See the following figure:

Figure 8.11 (completed)



a) The original equilibrium interest rate is 5% which results in an investment spending of \$500. An increase in investment spending of \$100 means a **movement down the Id curve** in graph B and this requires a decrease in the interest rate of 1%. This means that the **MD** must shift left 1 square in graph A.

b) new equilibrium interest rate: **4%**

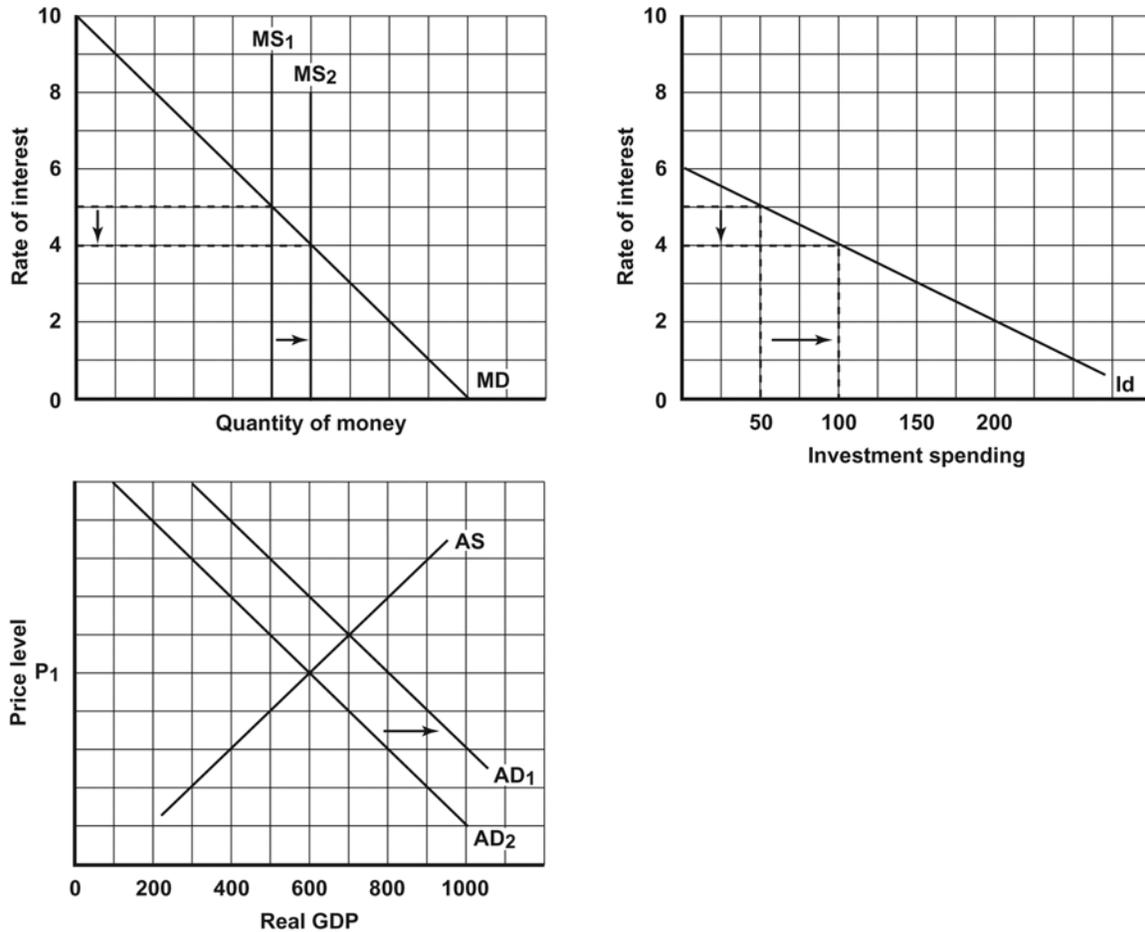
c) See Figure 8.11 (completed)

Real GDP will rise from \$600 to \$800 (the multiplier is 2) and this means a **rightward shift in the AS curve** of 6 squares in graph C.

d) **10% decrease in price level** (price level fell from 100 to 90)

45. a) See the following figure:

Figure 8.12 (completed)



A rightward shift of 1 square of the MS curve in graph A will reduce the interest rate by 1% and this will cause a **movement along the Id curve** in graph B, which will increase investment spending by \$50 (from \$50 to \$100).

b) investment spending: **\$100**

c) See Figure 8.12 (completed)

Real GDP will increase by \$100 (the multiplier is 2) and this means that the AD curve in graph C **will shift to the right by 2 squares**.

d) GDP: **\$700**

46. a) The transactions demand for money **will increase** because an increase in the price level will increase nominal income.
- b) The transactions demand for money **will increase** because an increase real income will increase nominal income.
- c) The transactions demand for money **will increase** because nominal income has increased.
- d) The transactions demand for money **will increase** because; nominal income has increased.

47. 1993: $V = 15$; 1994: $V = 14.1$; 1995: $V = 14$;
 1996: $V = 13$; 1997: $V = 11.6$.

48. **Keynesians** would expect the asset demand for money to be **very high**. **Monetarist** assume that there is **no asset demand for money**.
49. Since economic growth means an increase in the output of real goods and services, an increase in the money supply is needed to **prevent higher interest rates** (as a result of a higher transactions demand for money) which would reduce investment and economic growth.