APPENDIX 18A: Calculation of Growth in IRA Value during an Individual's Working Years

You are 25 years old and hope to retire when you are 65. You currently have $10,000 in your IRA and plan to contribute $5,000 to the account each year until you retire. If you expect to earn an annual return on the fund of 6 percent, show the growth in your retirement fund over the 40-year period. At the time you plan to retire, how much of the balance of your fund represents contributions you have made? How much is earned interest?

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\begin{aligned}
&\text{End of Year 1: } (\$10,000 \times 1.06) + \$5,000 = \$\ 15,600.00 \\
&\text{End of Year 2: } (\$15,600 \times 1.06) + \$5,000 = \$\ 21,536.00 \\
&\text{End of Year 3: } (\$21,536 \times 1.06) + \$5,000 = \$\ 27,828.16 \\
&\text{End of Year 4: } (\$27,828.16 \times 1.06) + \$5,000 = \$\ 34,497.85 \\
&\text{End of Year 5: } (\$34,497.85 \times 1.06) + \$5,000 = \$\ 41,567.72 \\
&\text{End of Year 6: } (\$41,567.72 \times 1.06) + \$5,000 = \$\ 49,061.78 \\
&\text{End of Year 7: } (\$49,061.78 \times 1.06) + \$5,000 = \$\ 57,005.49 \\
&\text{End of Year 8: } (\$57,005.49 \times 1.06) + \$5,000 = \$\ 65,425.82 \\
&\text{End of Year 9: } (\$65,425.82 \times 1.06) + \$5,000 = \$\ 74,351.37 \\
&\text{End of Year 10: } (\$74,351.37 \times 1.06) + \$5,000 = \$\ 83,812.45 \\
&\text{End of Year 11: } (\$83,812.45 \times 1.06) + \$5,000 = \$\ 93,841.20 \\
&\text{End of Year 12: } (\$93,841.20 \times 1.06) + \$5,000 = \$104,471.67 \\
&\text{End of Year 13: } (\$104,471.67 \times 1.06) + \$5,000 = \$115,739.97 \\
&\text{End of Year 14: } (\$115,739.97 \times 1.06) + \$5,000 = \$127,684.37 \\
&\text{End of Year 15: } (\$127,684.37 \times 1.06) + \$5,000 = \$140,345.43 \\
&\text{End of Year 16: } (\$140,345.43 \times 1.06) + \$5,000 = \$153,766.16 \\
&\text{End of Year 17: } (\$153,766.16 \times 1.06) + \$5,000 = \$167,992.13 \\
&\text{End of Year 18: } (\$167,992.13 \times 1.06) + \$5,000 = \$183,071.65 \\
&\text{End of Year 19: } (\$183,071.65 \times 1.06) + \$5,000 = \$199,055.95 \\
&\text{End of Year 20: } (\$199,055.95 \times 1.06) + \$5,000 = \$215,999.31 \\
&\text{End of Year 21: } (\$215,999.31 \times 1.06) + \$5,000 = \$233,959.27 \\
&\text{End of Year 22: } (\$233,959.27 \times 1.06) + \$5,000 = \$252,996.83 \\
&\text{End of Year 23: } (\$252,996.83 \times 1.06) + \$5,000 = \$273,176.64 \\
&\text{End of Year 24: } (\$273,176.64 \times 1.06) + \$5,000 = \$294,567.23 \\
&\text{End of Year 25: } (\$294,567.23 \times 1.06) + \$5,000 = \$317,241.27 \\
&\text{End of Year 26: } (\$317,241.27 \times 1.06) + \$5,000 = \$341,275.74 \\
&\text{End of Year 27: } (\$341,275.74 \times 1.06) + \$5,000 = \$366,752.29 \\
&\text{End of Year 28: } (\$366,752.29 \times 1.06) + \$5,000 = \$393,757.43 \\
&\text{End of Year 29: } (\$393,757.43 \times 1.06) + \$5,000 = \$422,382.87 \\
&\text{End of Year 30: } (\$422,382.87 \times 1.06) + \$5,000 = \$452,725.84 \\
&\text{End of Year 31: } (\$452,725.84 \times 1.06) + \$5,000 = \$484,889.39 \\
&\text{End of Year 32: } (\$484,889.39 \times 1.06) + \$5,000 = \$518,982.76 \\
&\text{End of Year 33: } (\$518,982.76 \times 1.06) + \$5,000 = \$555,121.72 \\
&\text{End of Year 34: } (\$555,121.72 \times 1.06) + \$5,000 = \$593,429.03 \\
&\text{End of Year 35: } (\$593,429.03 \times 1.06) + \$5,000 = \$634,034.77 \\
&\text{End of Year 36: } (\$634,034.77 \times 1.06) + \$5,000 = \$677,076.85 \\
&\text{End of Year 37: } (\$677,076.85 \times 1.06) + \$5,000 = \$722,701.46 \\
&\text{End of Year 38: } (\$722,701.46 \times 1.06) + \$5,000 = \$771,063.55 \\
&\text{End of Year 39: } (\$771,063.55 \times 1.06) + \$5,000 = \$822,327.37 \\
&\text{End of Year 40: } (\$822,327.37 \times 1.06) + \$5,000 = \$876,667.01
\end{aligned}
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Your retirement fund is projected to be worth $876,667.01 when you retire at age 65. You have invested $10,000 + (40 \times \$5,000) = \$210,000$ and earned interest of $666,667.01.