1. Janet plans on saving $3,000 a year and expects to earn 8.5%. How much will Janet have at the end of twenty-five years if she earns what she expects?

\[ AFV = \frac{3,000 \times (1 + 0.085)^{25} - 1}{0.085} = 3,000 \times 78.66792 = 236,003.38 \]

Enter 25 8.5 -3,000 PMT
Solve for FV

2. Winston Enterprises would like to buy some additional land and build a new factory. The anticipated total cost is $136 million. The owner of the firm is quite conservative and will only do this when the company has sufficient funds to pay cash for the entire expansion project. Management has decided to save $450,000 a month for this purpose. The firm earns 6% compounded monthly on the funds it saves. How long does the company have to wait before expanding its operations?

\[ \ln 2.511111 = t \times \ln 1.005; \quad t = 184.61 \quad \text{Note: } t \text{ is stated in the number of months.} \]

Enter 6/12 -450,000 136,000,000
Solve for 184.61

3. Today, you turn 21. Your birthday wish is that you will be a millionaire by your 40th birthday. In an attempt to reach this goal, you decide to save $25 a day, every day until you turn 40. You open an investment account and deposit your first $25 today. What rate of return must you earn to achieve your goal?

This can not be solved directly, so it's easiest to just use the calculator method to get an answer. You can then use the calculator answer as the rate in the formula just to verify that you answer is correct.

Enter (40-21)×365 /365 -25BGN 1,000,000
Solve for 15.07
To more decimal places, the answer is 15.0697117%.

4. Marko, Inc. is considering the purchase of ABC Co. Marko believes that ABC Co. can generate cash flows of $5,000, $9,000, and $15,000 over the next three years, respectively. After that time, Marko feels ABC will be worthless. Marko has determined that a 14% rate of return is applicable to this potential purchase. What is Marko willing to pay today to buy ABC Co.?

\[ PV = \left[ \frac{5,000}{(1 + 0.14)^1} \right] + \left[ \frac{9,000}{(1 + 0.14)^2} \right] + \left[ \frac{15,000}{(1 + 0.14)^3} \right]; \quad PV = 21,435.74 \]
Enter  
N  I/Y  PV  PMT  FV 
Solve for 

Enter  
N  I/Y  PV  PMT  FV 
Solve for 

Enter  
N  I/Y  PV  PMT  FV 
Solve for 

Present value = $4,385.96 + $6,925.21 + $10,124.57 = $21,435.74

5. George Jefferson established a trust fund that provides $150,000 in scholarships each year for worthy students. The trust fund earns a 4.25% rate of return. How much money did Mr. Jefferson contribute to the fund assuming that only the interest income is distributed?

\[ PV = \frac{150,000}{0.0425} \implies PV = \$3,529,411.77 \]

6. You hope to buy your dream house six years from now. Today your dream house costs $189,900. You expect housing prices to rise by an average of 4.5% per year over the next six years. How much will your dream house cost by the time you are ready to buy it?

Future value = $189,900 \times (1 + 0.045)^6 = $247,299.20

Enter  
N  I/Y  PV  PMT  FV 
Solve for 

7. Thorton will receive an inheritance of $500,000 three years from now. Thorton's discount rate is 10% interest rate compounded semiannually. Which of the following values is closest to the amount that Thorton should accept today for the right to his inheritance?

\[ EAR = \left(1+\frac{r}{m}\right)^m-1 = \left[1+(0.1/2)\right]^2-1 = 0.1025 \]

\[ PV = \frac{500,000}{(1+0.0125)^3} = \$373,107.70 \]

8. An S&L provides a loan with 15 yearly repayments of $8,000 with the first payment beginning immediately. Which of the following amounts comes closest to the present value of the loan if the interest rate is 7%?

\[ PV = \text{Immediate Pmt} + \text{Pmt}(PVIFA_{7\%,14}) = \$8,000 + \$8,000(8.7455) = \$77,964 \]