NAME Solutions group#

For each question you must provide a solution that has the following form:

\[ F = \frac{500}{(1 + 0.06)^7 - 1} = 4196.92 \]

You must show the graph and the equations.

1. You want to buy a car and you go to a dealer again. Let's get it right this time. The dealer offers you 2 options. You can either get 0% interest over the 5 year loan or get a $3,000 rebate. If you choose the rebate, the interest on the load will be 8% compounded monthly. The car you wish to purchase cost $23,000. Your personal rate of return (interest) is 5%. That means if you get the rebate you will invest it at 5% yearly compounded monthly.

**Option 1** 0% vs. 8% for 5 years.

**Option 2** $3,000 Cash back.

**Purchase Price** $23,000.

**Personal Rate of Return is 5%**.

\[ 8\% \times 23,000 \text{ (A/P, } \frac{8\%}{12}, 5(12)) = \]
\[ = 23,000 \frac{0.0067 (1.0067)^{60}}{(1.0067)^{60} - 1} = 466.80 \]

\[ 8\% \times \frac{23,000}{60} = 383.33 \]

**Present Value is** \( (466.80 - 383.33)(\text{P/A, } \frac{5\%}{12}, 60) \)

\[ = 83.47 \frac{(1.00416)^{60} - 1}{0.00416 (1.00416)^{60}} = \$4423.09 > \$3,000 \]

=> Choose 0% option
2. Compute A. Note you have 26 payments each incrementing by $10 but only 10
As below.

\[ P = 100 \left( \frac{P}{A}, 12\%, 26 \right) + 10 \left( \frac{P}{A}, 12\%, 26 \right) = 100(7.89566) + 10(54.41766) = 1333.74 \]

\[ A = 1333.74 \left( \frac{A}{P}, 12\%, 10 \right) \]

\[ 1333.74 \left( 0.176984 \right) = 236.05 \]