1. Find the amount of an annuity $A_n$

10 annual payments \((n=10)\)
$1,000$ each payment \((R=1,000)\)
$6\%$ interest per year \((i=0.06)\)

\[ A = R \left[ \frac{(1+i)^n - 1}{i} \right] \]

\[ = 1,000 \left[ \frac{(1+0.06)^{10} - 1}{0.06} \right] \]

\[ = \$13,180.79 \]

5. Find the amount of an annuity $A_5$

16 quarterly payments \((n=16)\)
$300$ each payment \((R=300)\)
$8\%$ interest per year \((i=\frac{0.08}{4}=0.02)\)

\[ A_s = R \left[ \frac{(1+i)^n - 1}{i} \right] \]

\[ = 300 \left[ \frac{(1+0.02)^{16} - 1}{0.02} \right] \]

\[ = \$5,591.74 \]
How much money should be invested monthly in order to have $2000 in 8 months?

\[ R = ? \]
\[ A_f = 2000 \]
\[ n = 8 \]
\[ i = \frac{.06}{12} = .005 \]

\[ A_f = R \left[ \frac{(1+i)^n-1}{i} \right] \]

\[ 2000 = R \left[ \frac{(1+.005)^8-1}{.005} \right] \]

\[ 2000 = R \left( 8.1414 \ 08785 \right) \]

\[ R = \frac{2000}{8.1414 \ 08785} = 245.66 \]
How much money must be invested now (i.e. \( A_p \)) to fund the following annuity?

- 20 payments, payment every 6 months
- \$200 per payment
- first payment 6 months after start
- 9% interest rate compounded semi-annually

\[
N = 20 \\
i = 0.045 \\
R = 200
\]

\[
A_p = R \frac{1 - (1+i)^{-n}}{i} \\
= 200 \left[ \frac{1 - (1+0.045)^{-20}}{0.045} \right] \\
= 2601.59
\]