11 - loan amount $12,000 \quad A_P = 12000
- payments are monthly \quad n = 48
- 10.5\% per year \quad i = \frac{.105}{12} = .00875
- Find amount of each payment

\[ R = \frac{i \cdot A_P}{1 - (1+i)^{-n}} \quad R = \$307.24 \]

\[ R = \frac{(0.00875) (12000)}{1 - (1+.00875)^{-48}} \]

13 mortgage $100,000 \quad A_P = 100,000
- interest 8\% per year \quad i = \frac{.08}{12}
- compound monthly over 30 years \quad n = 360
- find total amount paid \quad A_P \quad A_S \quad R

First find monthly payment \( R \)

\[ R = \frac{i \cdot A_P}{1 - (1+i)^{-n}} \quad R \approx \frac{666.66}{9.08556627} \]

\[ R = \left( \frac{.08}{12} \right) (100000) \quad R \approx \$733.76 \]

\[ \frac{733.76 \times 360}{264,153.60} \]
15

$100,000 loan

interest 9.75%

30 year loan compounded monthly

\( \text{AP} = 100,000 \)

\( i = \frac{0.0975}{12} \)

\( n = 360 \)

(a) Find monthly payment \( R \)

\[
R = \frac{i \times \text{AP}}{1 - (1 + i)^{-n}}
\]

\[
R = \frac{0.008125 \times 100000}{1 - (1 + 0.008125)^{-360}}
\]

\( R = $812.5 \)

(b) Total payments

\[
R \times 360 = $812.5 \times 360 = $293,220
\]

(c) Total value of $100,000 deposited in an account for 30 years at 9.75%

\[
PV = 100,000 \quad A = \text{amount in account after 30 years.}
\]

\[
A = \text{PV} \times (1 + i)^n
\]

\[
A = 100,000 \times (1 + 0.08125)^{360}
\]

\( A = $1,841,528.75 \)