1. You will need $2400 in cash two years from now. Your parents tell you that if you give them some amount of money now, they will pay you 10% annual simple interest on it, with no compounding. How much money do you need to give them in order to have the $2400 in two years?

2. If you invest $1000 in a bank account that pays 8% annual interest, compounded monthly, how much will there be in the account after 3 years?

\[
\begin{align*}
\$1000 \left(1 + \frac{8}{12}\right)^3 &= \$1000 (1 + .08)^{36} \\
\$ \left(1000 + \frac{.08}{12}\right)^3 &= \$1000 + \left(\frac{.08}{12}\right)^{36} \\
\$1000 \left(1 + \frac{.08}{12}\right)^{36} &= \$1000 \left(\frac{8}{12}\right)^3
\end{align*}
\]

3. If you invest $1000 at 8% annually, compounded monthly, how many months will it be until you double your money?

\[
\begin{align*}
\log (1000) \left(1 + \frac{.08}{12}\right) &= \log (2000) \\
\frac{\log (2000)}{\log (1 + \frac{.08}{12})} &= \frac{\log (2)}{\log (1 + \frac{.08}{12})} \\
\frac{\log (1000)}{\log (1 + \frac{.08}{12})} &= \sqrt{1000 + \frac{.08}{12}} \\
\frac{1}{12} \log \left(1 + \frac{.08}{12}\right) &= \log \left(1 + \frac{.08}{12}\right)
\end{align*}
\]