1. According to a recent study, the average amount of money spent at a shopping mall after $x$ hours can be approximated using the formula $S = 42.2(1.56)^x$, where $x \geq 1$. Solve this formula for $x$.

\[
S = 42.2(1.56)^x
\]

\[
\frac{S}{42.2} = (1.56)^x
\]

\[
\log_{1.56} \left( \frac{S}{42.2} \right) = x
\]

2. The trade-in value of a particular automobile $t$ years after it is purchased can be approximated using the formula $V = 0.75C(0.85)^{t-1}$, where $C$ is the original purchase price. Solve this formula for $t$.

\[
V = 0.75C(0.85)^{t-1}
\]

\[
\frac{V}{0.75C} = (0.85)^{t-1}
\]

\[
\log_{0.85} \left( \frac{V}{0.75C} \right) = t - 1
\]

\[
1 + \log_{0.85} \left( \frac{V}{0.75C} \right) = t
\]