Example

How long will it take an investment to triple if the annual interest rate is 2.7% compounded continuously?

**SOLUTION:**

We will use the formula \( A = Pe^{rt} \) where \( r = 0.027 \). We are not given a specific value of \( P \) since we just want to know how long it will take or an investment to triple. This means that \( A = 3P \). So then

\[
A = Pe^{rt}
\]

\[
3P = Pe^{0.027t}
\]

\[
3 = e^{0.027t}
\]

\[
\ln 3 = \ln (e^{0.027t})
\]

\[
\ln 3 = 0.027t
\]

\[
t = \frac{\ln 3}{0.027} \approx 40.69
\]

It will take about 40.69 years for an investment to triple at 2.7% compounded continuously.