Name

Exponential Function Solving - Growth (Continuous, Mis-matched Time Units) - Equation to Time

1 Solve for the time given this model of a growth of debt on a credit card with continuous compounding?

$$269 = 200 \cdot e^{(0.05 \cdot \frac{t}{3})}$$

A $t = +\frac{1}{3} \cdot \frac{\ln D \cdot D_0}{r}$

B $t = +3 \cdot \frac{\ln \frac{D}{D_0}}{r}$

C $t = +3 \cdot \frac{r}{\ln \frac{D}{D_0}}$

D $t = +\frac{1}{3} \cdot \frac{\ln \frac{D}{D_0}}{r}$

2 Solve for the time given this model of a continuously compounding growth of a share price?

$$773 = 700 \cdot e^{(0.02 \cdot \frac{t}{4})}$$

A $t = +4 \cdot \frac{\ln \frac{S}{S_0}}{r}$

B $t = +4 \cdot \frac{r}{\ln \frac{S}{S_0}}$

3 Solve for the time given this model of a continuously compounding growth of a share price?

$$350 = 200 \cdot e^{(0.07 \cdot t \cdot 12)}$$

A $t = +\frac{1}{12} \cdot \frac{r}{\ln \frac{S}{S_0}}$

B $t = +12 \cdot \frac{\ln \frac{S}{S_0}}{r}$

C $t = +\frac{1}{12} \cdot \frac{\ln \frac{S}{S_0}}{r}$

4 Solve for the time given this model of a continuously compounding growth of money in a savings account?

$$821 = 700 \cdot e^{(0.02 \cdot \frac{t}{3})}$$

A $t = +\frac{1}{3} \cdot \frac{\ln P \cdot P_0}{r}$

B $t = +\frac{1}{3} \cdot \frac{\ln \frac{P}{P_0}}{r}$

C $t = +3 \cdot \frac{\ln \frac{P}{P_0}}{r}$

D $t = +3 \cdot \frac{r}{\ln \frac{P}{P_0}}$

5 Solve for the time given this model of a continuously compounding growth of money in a savings account?

$$239 = 200 \cdot e^{(0.06 \cdot \frac{t}{3})}$$

A $t = +\frac{1}{3} \cdot \frac{\ln P \cdot P_0}{r}$

B $t = +3 \cdot \frac{r}{\ln \frac{P}{P_0}}$

C $t = +\frac{1}{3} \cdot \frac{\ln \frac{P}{P_0}}{r}$

D $t = +3 \cdot \frac{\ln \frac{P}{P_0}}{r}$

6 Solve for the time given this model of a continuously compounding growth of money in a savings account?

$$232 = 200 \cdot e^{(0.05 \cdot \frac{t}{12})}$$

A $t = +\frac{1}{12} \cdot \frac{\ln \frac{P}{P_0}}{r}$

B $t = +12 \cdot \frac{\ln \frac{P}{P_0}}{r}$

C $t = +\frac{1}{12} \cdot \frac{\ln P \cdot P_0}{r}$

D $t = +12 \cdot \frac{r}{\ln \frac{P}{P_0}}$

7 Solve for the time given this model of a continuous growth of a bacteria population?

$$493 = 400 \cdot e^{(0.03 \cdot \frac{t}{12})}$$

A $t = +\frac{1}{12} \cdot \frac{\ln P \cdot P_0}{r}$

B $t = +12 \cdot \frac{\ln \frac{P}{P_0}}{r}$

8 Solve for the time given this model of a continuously compounding growth of money in a savings account?

$$1,146 = 800 \cdot e^{(0.09 \cdot t \cdot 12)}$$

A $t = +\frac{1}{12} \cdot \frac{r}{\ln \frac{P}{P_0}}$

B $t = +\frac{1}{12} \cdot \frac{\ln \frac{P}{P_0}}{r}$