Name

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

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

$$503 = 400 \cdot (1 + 0.08)^{(t \cdot 3)}$$

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

B $t = 3 \cdot \frac{\ln \frac{P}{P_0}}{\ln (1-r)}$

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

2 Solve for the time given this model of a growth in credit card debt with monthly interest?

$$711 = 500 \cdot (1 + 0.04)^{(t \cdot 12)}$$

A $t = \frac{1}{12} \cdot \frac{\ln D \cdot D_0}{\ln (1+r)}$

B $t = \frac{1}{12} \cdot \frac{\ln \frac{D}{D_0}}{\ln (1+r)}$

C $t = 12 \cdot \frac{\ln \frac{D}{D_0}}{\ln (1+r)}$

3 Solve for the time given this model of a growth in credit card debt with yearly interest?

$$3,360 = 400 \cdot (1 + 0.03)^{(\frac{t}{12})}$$

A $t = 12 \cdot \frac{\ln \frac{D}{D_0}}{\ln (1+r)}$

B $t = \frac{1}{12} \cdot \frac{\ln \frac{D}{D_0}}{\ln (1+r)}$

C $t = 12 \cdot \frac{\ln D \cdot D_0}{\ln (1+r)}$

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

$$2,007 = 300 \cdot (1 + 0.02)^{(\frac{t}{12})}$$

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

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

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

5 Solve for the time given this model of a growth in credit card debt with monthly interest?

$$351 = 300 \cdot (1 + 0.02)^{(t \cdot 12)}$$

A $t = 12 \cdot \frac{\ln \frac{D}{D_0}}{\ln (1-r)}$

B $t = \frac{1}{12} \cdot \frac{\ln \frac{D}{D_0}}{\ln (1+r)}$

C $t = \frac{1}{12} \cdot \frac{\ln D \cdot D_0}{\ln (1+r)}$

D $t = 12 \cdot \frac{\ln \frac{D}{D_0}}{\ln (1+r)}$

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

$$264,790 = 400 \cdot (1 + 0.07)^{(\frac{t}{12})}$$

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

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

C $t = \frac{1}{12} \cdot \frac{\ln \frac{P}{P_0}}{\ln (1-r)}$

7 Solve for the time given this model of a growth in credit card debt with monthly interest?

$$574 = 500 \cdot (1 + 0.02)^{(t \cdot 3)}$$

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

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

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

8 Solve for the time given this model of a growth in credit card debt with yearly interest?

$$10,778 = 900 \cdot (1 + 0.03)^{(\frac{t}{12})}$$

A $t = 12 \cdot \frac{\ln \frac{D}{D_0}}{\ln (1+r)}$

B $t = 12 \cdot \frac{\ln D \cdot D_0}{\ln (1+r)}$