Name

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

1 Solve for the time given this model of a balance of a charitable endowment (weekly disbursements)?

$$5 = 300 \cdot (1 - 0.08)^{\left(\frac{t}{7}\right)}$$

A	$t = \frac{1}{7} \cdot \frac{\ln \frac{P}{P_0}}{\ln(1+r)}$	B	$t = 7 \cdot \frac{\ln P \cdot P_0}{\ln(1-r)}$
C	$t = 7 \cdot \frac{\ln \frac{P}{P_0}}{\ln(1-r)}$	D	$t = \frac{1}{7} \cdot \frac{\ln \frac{P}{P_0}}{\ln(1-r)}$

2 Solve for the time given this model of a decline of a toxin concentration (hourly dialysis)?

$$253 = 300 \cdot (1 - 0.08)^{(t \cdot 24)}$$

A	$t = 24 \cdot \frac{\ln \frac{C}{C_0}}{\ln(1-r)}$	B	$t = \frac{1}{24} \cdot \frac{\ln \frac{C}{C_0}}{\ln(1-r)}$
C	$t = \frac{1}{24} \cdot \frac{\ln C \cdot C_0}{\ln(1-r)}$		

3 Solve for the time given this model of a balance of a charitable endowment (yearly disbursements)?

$$20 = 600 \cdot (1 - 0.09)^{\left(\frac{t}{12}\right)}$$

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

4 Solve for the time given this model of a decline of a toxin concentration (weekly dialysis)?

$$282 = 500 \cdot (1 - 0.04)^{\left(\frac{t}{7}\right)}$$

A	$t = \frac{1}{7} \cdot \frac{\ln \frac{C}{C_0}}{\ln(1+r)}$	B	$t = 7 \cdot \frac{\ln \frac{C}{C_0}}{\ln(1-r)}$
C	$t = \frac{1}{7} \cdot \frac{\ln \frac{C}{C_0}}{\ln(1-r)}$	D	$t = 7 \cdot \frac{\ln C \cdot C_0}{\ln(1-r)}$

5 Solve for the time given this model of a decline of a toxin concentration (weekly dialysis)?

$$334 = 900 \cdot (1 - 0.02)^{\left(\frac{t}{7}\right)}$$

A	$t = 7 \cdot \frac{\ln \frac{C}{C_0}}{\ln(1-r)}$	B	$t = 7 \cdot \frac{\ln C \cdot C_0}{\ln(1-r)}$
C	$t = \frac{1}{7} \cdot \frac{\ln \frac{C}{C_0}}{\ln(1+r)}$		

6 Solve for the time given this model of a balance of a charitable endowment (weekly disbursements)?

$$294 = 700 \cdot (1 - 0.06)^{\left(\frac{t}{7}\right)}$$

A	$t = 7 \cdot \frac{\ln P \cdot P_0}{\ln(1-r)}$	B	$t = 7 \cdot \frac{\ln \frac{P}{P_0}}{\ln(1-r)}$
C	$t = \frac{1}{7} \cdot \frac{\ln \frac{P}{P_0}}{\ln(1+r)}$		

7 Solve for the time given this model of a balance of a charitable endowment (daily disbursements)?

$$456 = 600 \cdot (1 - 0.03)^{(t \cdot 7)}$$

A	$t = 7 \cdot \frac{\ln \frac{P}{P_0}}{\ln(1+r)}$	B	$t = 7 \cdot \frac{\ln \frac{P}{P_0}}{\ln(1-r)}$
C	$t = \frac{1}{7} \cdot \frac{\ln \frac{P}{P_0}}{\ln(1-r)}$		

8 Solve for the time given this model of a decline of a toxin concentration (daily dialysis)?

$$0 = 500 \cdot (1 - 0.09)^{\left(\frac{t}{24}\right)}$$

A	$t = 24 \cdot \frac{\ln \frac{C}{C_0}}{\ln(1-r)}$	B	$t = \frac{1}{24} \cdot \frac{\ln \frac{C}{C_0}}{\ln(1-r)}$
C	$t = \frac{1}{24} \cdot \frac{\ln \frac{C}{C_0}}{\ln(1+r)}$		