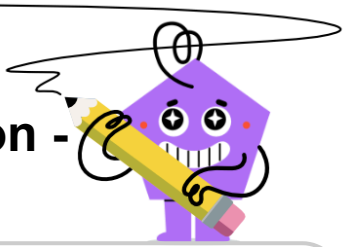
Name



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

1

A toxin starts at a concentration of 800mg/L. Each daily dialysis reduces it by 3%. After a certain number of hours it has decreased to a concentration of 42mg/L.

Rearrange the exponential equation to solve for for the time given this scenario?

A $t = \frac{1}{24} \cdot \frac{\ln \frac{42}{800}}{\ln(1+0.03)}$

B $t = 24 \cdot \frac{\ln \frac{42}{800}}{\ln(1-0.03)}$

C $t = 24 \cdot \frac{\ln 42 \cdot 800}{\ln(1-0.03)}$

2

A charitable endowment starts with $900. Each daily it disburses 5% of its remaining funds. After a certain number of years its funds have decreased to $771.

Rearrange the exponential equation to solve for for the time given this scenario?

A $t = \frac{1}{365} \cdot \frac{\ln \frac{771}{900}}{\ln(1-0.05)}$

B $t = \frac{1}{365} \cdot \frac{\ln 771 \cdot 900}{\ln(1-0.05)}$

C $t = 365 \cdot \frac{\ln \frac{771}{900}}{\ln(1+0.05)}$

D $t = 365 \cdot \frac{\ln \frac{771}{900}}{\ln(1-0.05)}$

3

A charitable endowment starts with $900. Each daily it disburses 2% of its remaining funds. After a certain number of years its funds have decreased to $830.

Rearrange the exponential equation to solve for for the time given this scenario?

A $t = 365 \cdot \frac{\ln \frac{830}{900}}{\ln(1+0.02)}$

B $t = \frac{1}{365} \cdot \frac{\ln \frac{830}{900}}{\ln(1-0.02)}$

C $t = 365 \cdot \frac{\ln \frac{830}{900}}{\ln(1-0.02)}$

4

A charitable endowment starts with $600. Each yearly it disburses 8% of its remaining funds. After a certain number of months its funds have decreased to $10.

Rearrange the exponential equation to solve for for the time given this scenario?

A $t = 12 \cdot \frac{\ln 10 \cdot 600}{\ln(1-0.08)}$

B $t = 12 \cdot \frac{\ln \frac{10}{600}}{\ln(1-0.08)}$

C $t = \frac{1}{12} \cdot \frac{\ln \frac{10}{600}}{\ln(1+0.08)}$

5

A charitable endowment starts with $500. Each weekly it disburses 9% of its remaining funds. After a certain number of days its funds have decreased to $2.

Rearrange the exponential equation to solve for for the time given this scenario?

A $t = \frac{1}{7} \cdot \frac{\ln \frac{2}{500}}{\ln(1-0.09)}$

B $t = 7 \cdot \frac{\ln \frac{2}{500}}{\ln(1-0.09)}$

C $t = 7 \cdot \frac{\ln 2 \cdot 500}{\ln(1-0.09)}$

6

A charitable endowment starts with $200. Each yearly it disburses 9% of its remaining funds. After a certain number of months its funds have decreased to $0.

Rearrange the exponential equation to solve for for the time given this scenario?

A $t = 12 \cdot \frac{\ln \frac{0}{200}}{\ln(1-0.09)}$

B $t = \frac{1}{12} \cdot \frac{\ln \frac{0}{200}}{\ln(1+0.09)}$

C $t = 12 \cdot \frac{\ln 0 \cdot 200}{\ln(1-0.09)}$

D $t = \frac{1}{12} \cdot \frac{\ln \frac{0}{200}}{\ln(1-0.09)}$

7

A charitable endowment starts with $900. Each yearly it disburses 4% of its remaining funds. After a certain number of months its funds have decreased to $17.

Rearrange the exponential equation to solve for for the time given this scenario?

A $t = \frac{1}{12} \cdot \frac{\ln \frac{17}{900}}{\ln(1-0.04)}$

B $t = 12 \cdot \frac{\ln \frac{17}{900}}{\ln(1-0.04)}$

8

A toxin starts at a concentration of 200mg/L. Each daily dialysis reduces it by 7%. After a certain number of weeks it has decreased to a concentration of 149mg/L.

Rearrange the exponential equation to solve for for the time given this scenario?

A $t = 7 \cdot \frac{\ln \frac{149}{200}}{\ln(1+0.07)}$

B $t = \frac{1}{7} \cdot \frac{\ln 149 \cdot 200}{\ln(1-0.07)}$

C $t = \frac{1}{7} \cdot \frac{\ln \frac{149}{200}}{\ln(1-0.07)}$