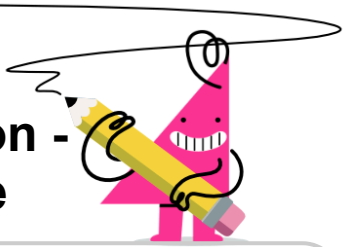
Name



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

1

A toxin starts at a concentration of 200mg/L. It declines continuously at 8% per week. After a certain number of days it has decreased to a concentration of 134mg/L.

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

A $t = -7 \cdot \frac{\ln \frac{134}{200}}{0.08}$

B $t = -7 \cdot \frac{0.08}{\ln \frac{134}{200}}$

C $t = +\frac{1}{7} \cdot \frac{\ln 134 \cdot 200}{0.08}$

2

A radioactive material starts at an isotope concentration of 900ppm. It decays continuously at 5% per day. After a certain number of weeks it has decayed to an isotope concentration of 736ppm.

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

A $t = -7 \cdot \frac{\ln \frac{736}{900}}{0.05}$

B $t = -\frac{1}{7} \cdot \frac{\ln \frac{736}{900}}{0.05}$

C $t = +7 \cdot \frac{\ln 736 \cdot 900}{0.05}$

3

A bird population starts at 600. It declines continuously at 2% per year. After a certain number of quarters it has decreased to a population of 511.

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

A $t = -4 \cdot \frac{0.02}{\ln \frac{511}{600}}$

B $t = -4 \cdot \frac{\ln \frac{511}{600}}{0.02}$

4

A radioactive material starts at an isotope concentration of 600ppm. It decays continuously at 2% per week. After a certain number of days it has decayed to an isotope concentration of 501ppm.

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

A $t = -7 \cdot \frac{\ln \frac{501}{600}}{0.02}$

B $t = +\frac{1}{7} \cdot \frac{\ln 501 \cdot 600}{0.02}$

5

A bacteria population starts at 600. It declines continuously at 5% per day. After a certain number of years it has decreased to a population of 542 bacteria.

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

A $t = -\frac{1}{365} \cdot \frac{\ln \frac{542}{600}}{0.05}$

B $t = +365 \cdot \frac{\ln 542 \cdot 600}{0.05}$

C $t = -365 \cdot \frac{\ln \frac{542}{600}}{0.05}$

6

A radioactive material starts at an isotope concentration of 200ppm. It decays continuously at 9% per day. After a certain number of hours it has decayed to an isotope concentration of 97ppm.

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

A $t = +\frac{1}{24} \cdot \frac{\ln 97 \cdot 200}{0.09}$

B $t = -24 \cdot \frac{\ln \frac{97}{200}}{0.09}$

C $t = -24 \cdot \frac{0.09}{\ln \frac{97}{200}}$

D $t = -\frac{1}{24} \cdot \frac{\ln \frac{97}{200}}{0.09}$

7

A toxin starts at a concentration of 600mg/L. It declines continuously at 8% per week. After a certain number of days it has decreased to a concentration of 511mg/L.

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

A $t = -7 \cdot \frac{\ln \frac{511}{600}}{0.08}$

B $t = -\frac{1}{7} \cdot \frac{\ln \frac{511}{600}}{0.08}$

C $t = -7 \cdot \frac{0.08}{\ln \frac{511}{600}}$

8

A whale population starts at 500. It declines continuously at 9% per quarter. After a certain number of years it has decreased to a population of 266 whales.

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

A $t = -4 \cdot \frac{\ln \frac{266}{500}}{0.09}$

B $t = -\frac{1}{4} \cdot \frac{0.09}{\ln \frac{266}{500}}$

C $t = -\frac{1}{4} \cdot \frac{\ln \frac{266}{500}}{0.09}$