Name

Exponential Function Solution Equation - Decay (Continuous) - Scenario to Time

1

A whale population starts at 700. It declines continuously at 8% per quarter. After a certain number of quarters it has decreased to a population of 596 whales.

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

A $t = -\frac{\ln \frac{596}{700}}{0.08}$

B $t = +\frac{\ln 596 \cdot 700}{0.08}$

2

A radioactive material starts at an isotope concentration of 900ppm. It decays continuously at 4% per week. After a certain number of weeks it has decayed to an isotope concentration of 830ppm.

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

A $t = +\frac{\ln 830 \cdot 900}{0.04}$

B $t = -\frac{\ln \frac{830}{900}}{0.04}$

3

A bird population starts at 400. It declines continuously at 2% per year. After a certain number of years it has decreased to a population of 361.

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

A $t = -\frac{0.02}{\ln \frac{361}{400}}$

B $t = +\frac{\ln 361 \cdot 400}{0.02}$

C $t = -\frac{\ln \frac{361}{400}}{0.02}$

4

A toxin starts at a concentration of 400mg/L. It declines continuously at 8% per month. After a certain number of months it has decreased to a concentration of 247mg/L.

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

A $t = -\frac{\ln \frac{247}{400}}{0.08}$

B $t = +\frac{\ln 247 \cdot 400}{0.08}$

C $t = -\frac{0.08}{\ln \frac{247}{400}}$

5

A radioactive material starts at an isotope concentration of 800ppm. It decays continuously at 7% per hour. After a certain number of hours it has decayed to an isotope concentration of 648ppm.

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

A $t = +\frac{\ln 648 \cdot 800}{0.07}$

B $t = -\frac{\ln \frac{648}{800}}{0.07}$

6

A bird population starts at 700. It declines continuously at 3% per quarter. After a certain number of quarters it has decreased to a population of 602.

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

A $t = -\frac{\ln \frac{602}{700}}{0.03}$

B $t = +\frac{\ln 602 \cdot 700}{0.03}$

7

A whale population starts at 200. It declines continuously at 9% per year. After a certain number of years it has decreased to a population of 139 whales.

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

A $t = -\frac{0.09}{\ln \frac{139}{200}}$

B $t = +\frac{\ln 139 \cdot 200}{0.09}$

C $t = -\frac{\ln \frac{139}{200}}{0.09}$

8

A bird population starts at 300. It declines continuously at 5% per year. After a certain number of years it has decreased to a population of 201.

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

A $t = -\frac{\ln \frac{201}{300}}{0.05}$

B $t = -\frac{0.05}{\ln \frac{201}{300}}$