Name

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

1

A bacteria population starts at 400. It declines continuously at a certain percent per year. After 5 years it has decreased to a population of 255 bacteria.

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

A $r = -\frac{e^{\frac{255}{400}}}{5}$

B $r = -\frac{\ln\frac{400}{255}}{5}$

C $r = -\frac{\ln\frac{255}{400}}{5}$

2

A radioactive material starts at an isotope concentration of 800ppm. It decays continuously at a certain percent per day. After 2 days it has decayed to an isotope concentration of 668ppm.

Rearrange the exponential equation to solve for for the rate of decay given this scenario?

A $r = -\frac{\ln\frac{800}{668}}{2}$

B $r = -\frac{e^{\frac{668}{800}}}{2}$

C $r = -\frac{\ln\frac{668}{800}}{2}$

3

A bacteria population starts at 200. It declines continuously at a certain percent per month. After 6 months it has decreased to a population of 131 bacteria.

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

A $r = -\frac{\ln\frac{131}{200}}{6}$

B $r = -\frac{e^{\frac{131}{200}}}{6}$

C $r = -\frac{\ln\frac{200}{131}}{6}$

4

A radioactive material starts at an isotope concentration of 300ppm. It decays continuously at a certain percent per hour. After 5 hours it has decayed to an isotope concentration of 191ppm.

Rearrange the exponential equation to solve for for the rate of decay given this scenario?

A $r = -\frac{\ln\frac{300}{191}}{5}$

B $r = -\frac{\ln\frac{191}{300}}{5}$

5

A toxin starts at a concentration of 400mg/L. It declines continuously at a certain percent per hour. After 5 hours it has decreased to a concentration of 344mg/L.

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

A $r = -\frac{e^{\frac{344}{400}}}{5}$

B $r = -\frac{\ln\frac{400}{344}}{5}$

C $r = -\frac{\ln\frac{344}{400}}{5}$

6

A bird population starts at 200. It declines continuously at a certain percent per quarter. After 8 quarters it has decreased to a population of 123.

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

A $r = -\frac{e^{\frac{123}{200}}}{8}$

B $r = -\frac{\ln\frac{123}{200}}{8}$

C $r = -\frac{\ln\frac{200}{123}}{8}$

7

A bird population starts at 800. It declines continuously at a certain percent per quarter. After 9 quarters it has decreased to a population of 510.

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

A $r = -\frac{\ln\frac{510}{800}}{9}$

B $r = -\frac{e^{\frac{510}{800}}}{9}$

C $r = -\frac{\ln\frac{800}{510}}{9}$

8

A bacteria population starts at 200. It declines continuously at a certain percent per year. After 5 years it has decreased to a population of 134 bacteria.

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

A $r = -\frac{\ln\frac{134}{200}}{5}$

B $r = -\frac{\ln\frac{200}{134}}{5}$

C $r = -\frac{e^{\frac{134}{200}}}{5}$