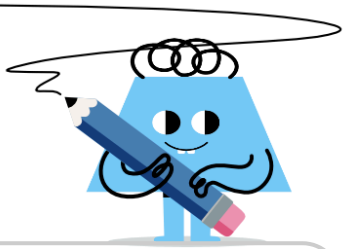
Name

Exponential Function Solving - Decay (Continuous) Scenario to Rate



1

A whale population starts at 200. It declines continuously at a certain percent per year. After 7 years it has decreased to a population of 114 whales.

Solve for the rate given this scenario?

A $9 + r = -\frac{e^{\frac{P}{P_0}}}{t}$

B $3 + r = -\frac{e^{\frac{P}{P_0}}}{t}$

C $r = -\frac{\ln \frac{P}{P_0}}{t}$

2

A bacteria population starts at 900. It declines continuously at a certain percent per week. After 7 weeks it has decreased to a population of 514 bacteria.

Solve for the rate given this scenario?

A $r = -\frac{\ln \frac{P}{P_0}}{t}$

B $1 + r = -\frac{\ln \frac{P_0}{P}}{t}$

C $0 + r = -\frac{e^{\frac{P}{P_0}}}{t}$

D $8 + r = -\frac{\ln \frac{P_0}{P}}{t}$

3

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 211ppm.

Solve for the rate of decay given this scenario?

A $5 + r = -\frac{\ln \frac{R_0}{R}}{t}$

B $1 + r = -\frac{\ln \frac{R_0}{R}}{t}$

C $r = -\frac{\ln \frac{R}{R_0}}{t}$

D $8 + r = -\frac{\ln \frac{R_0}{R}}{t}$

4

A bird population starts at 800. It declines continuously at a certain percent per quarter. After 7 quarters it has decreased to a population of 426.

Solve for the rate given this scenario?

A $5 + r = -\frac{e^{\frac{P}{P_0}}}{t}$

B $6 + r = -\frac{e^{\frac{P}{P_0}}}{t}$

C $7 + r = -\frac{\ln \frac{P_0}{P}}{t}$

D $r = -\frac{\ln \frac{P}{P_0}}{t}$

5

A radioactive material starts at an isotope concentration of 300ppm. It decays continuously at a certain percent per day. After 7 days it has decayed to an isotope concentration of 197ppm.

Solve for the rate of decay given this scenario?

A $4 + r = -\frac{e^{\frac{R}{R_0}}}{t}$

B $3 + r = -\frac{\ln \frac{R_0}{R}}{t}$

C $8 + r = -\frac{e^{\frac{R}{R_0}}}{t}$

D $r = -\frac{\ln \frac{R}{R_0}}{t}$

6

A toxin starts at a concentration of 400mg/L. It declines continuously at a certain percent per day. After 7 days it has decreased to a concentration of 228mg/L.

Solve for the rate given this scenario?

A $r = -\frac{\ln \frac{C}{C_0}}{t}$

B $9 + r = -\frac{e^{\frac{C}{C_0}}}{t}$

C $2 + r = -\frac{\ln \frac{C_0}{C}}{t}$

D $4 + r = -\frac{\ln \frac{C_0}{C}}{t}$

7

A toxin starts at a concentration of 800mg/L. It declines continuously at a certain percent per month. After 3 months it has decreased to a concentration of 709mg/L.

Solve for the rate given this scenario?

A $r = -\frac{\ln \frac{C}{C_0}}{t}$

B $9 + r = -\frac{\ln \frac{C_0}{C}}{t}$

C $7 + r = -\frac{\ln \frac{C_0}{C}}{t}$

D $2 + r = -\frac{e^{\frac{C}{C_0}}}{t}$

8

A whale population starts at 200. It declines continuously at a certain percent per year. After 3 years it has decreased to a population of 167 whales.

Solve for the rate given this scenario?

A $4 + r = -\frac{\ln \frac{P_0}{P}}{t}$

B $r = -\frac{\ln \frac{P}{P_0}}{t}$

C $9 + r = -\frac{e^{\frac{P}{P_0}}}{t}$