Name

Exponential Function Solving - Decay (Continuous) Scenario to Rate

1

A toxin starts at a concentration of 800mg/L. It declines continuously at a certain percent per hour. After 4 hours it has decreased to a concentration of 738mg/L.

How would you solve for the rate given this scenario?

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

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

2

A bird population starts at 500. It declines continuously at a certain percent per quarter. After 9 quarters it has decreased to a population of 417.

How would you solve for the rate given this scenario?

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

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

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

3

A whale population starts at 600. It declines continuously at a certain percent per year. After 7 years it has decreased to a population of 453 whales.

How would you solve for the rate given this scenario?

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

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

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

4

A toxin starts at a concentration of 700mg/L. It declines continuously at a certain percent per month. After 9 months it has decreased to a concentration of 446mg/L.

How would you solve for the rate given this scenario?

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

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

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

5

A bacteria population starts at 500. It declines continuously at a certain percent per day. After 4 days it has decreased to a population of 377 bacteria.

How would you solve for the rate given this scenario?

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

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

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

6

A whale population starts at 200. It declines continuously at a certain percent per quarter. After 3 quarters it has decreased to a population of 162 whales.

How would you solve for the rate given this scenario?

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

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

7

A bird population starts at 600. It declines continuously at a certain percent per quarter. After 8 quarters it has decreased to a population of 292.

How would you solve for the rate given this scenario?

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

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

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

8

A whale population starts at 500. It declines continuously at a certain percent per quarter. After 6 quarters it has decreased to a population of 291 whales.

How would you solve for the rate given this scenario?

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

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

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