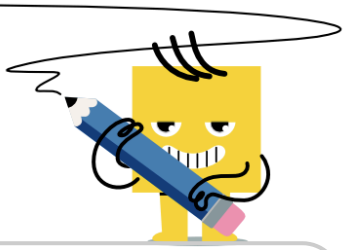
Name

Exponential Function Solving - Decay (Continuous, Mis-matched Time Units) Scenario to Rate



1

A bird population starts at 400. It declines continuously at a certain percent per quarter. After 7 years it has decreased to a population of 347.

How would you solve for the rate given this scenario?

A	B
$r = -\frac{e^{\frac{P}{P_0}}}{t \cdot 4}$	$r = -\frac{\ln \frac{P}{P_0}}{t \cdot 4}$

2

A whale population starts at 300. It declines continuously at a certain percent per year. After 9 quarters it has decreased to a population of 174 whales.

How would you solve for the rate given this scenario?

A	B
$r = -\frac{\ln \frac{P}{P_0}}{\frac{t}{4}}$	$r = -\frac{\ln \frac{P_0}{P}}{t \cdot 4}$
C	
$r = -\frac{e^{\frac{P}{P_0}}}{\frac{t}{4}}$	

3

A bird population starts at 600. It declines continuously at a certain percent per quarter. After 4 years it has decreased to a population of 435.

How would you solve for the rate given this scenario?

A	B
$r = -\frac{\ln \frac{P}{P_0}}{t \cdot 4}$	$r = -\frac{e^{\frac{P}{P_0}}}{t \cdot 4}$

4

A bacteria population starts at 700. It declines continuously at a certain percent per day. After 5 years it has decreased to a population of 469 bacteria.

How would you solve for the rate given this scenario?

A	B
$r = -\frac{\ln \frac{P}{P_0}}{t \cdot 365}$	$r = -\frac{e^{\frac{P}{P_0}}}{t \cdot 365}$
C	
$r = -\frac{\ln \frac{P_0}{P}}{\frac{t}{365}}$	

5

A radioactive material starts at an isotope concentration of 500ppm. It decays continuously at a certain percent per day. After 6 weeks it has decayed to an isotope concentration of 291ppm.

How would you solve for the rate of decay given this scenario?

A	B
$r = -\frac{\ln \frac{R}{R_0}}{t \cdot 7}$	$r = -\frac{e^{\frac{R}{R_0}}}{t \cdot 7}$
C	
$r = -\frac{\ln \frac{R_0}{R}}{\frac{t}{7}}$	

6

A bird population starts at 500. It declines continuously at a certain percent per quarter. After 4 years it has decreased to a population of 393.

How would you solve for the rate given this scenario?

A	B
$r = -\frac{e^{\frac{P}{P_0}}}{t \cdot 4}$	$r = -\frac{\ln \frac{P}{P_0}}{t \cdot 4}$
C	
$r = -\frac{\ln \frac{P_0}{P}}{\frac{t}{4}}$	

7

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

How would you solve for the rate given this scenario?

A	B
$r = -\frac{\ln \frac{P}{P_0}}{\frac{t}{12}}$	$r = -\frac{e^{\frac{P}{P_0}}}{\frac{t}{12}}$
C	
$r = -\frac{\ln \frac{P_0}{P}}{t \cdot 12}$	

8

A bird population starts at 900. It declines continuously at a certain percent per year. After 4 quarters it has decreased to a population of 736.

How would you solve for the rate given this scenario?

A	B
$r = -\frac{\ln \frac{P_0}{P}}{t \cdot 4}$	$r = -\frac{e^{\frac{P}{P_0}}}{\frac{t}{4}}$
C	
$r = -\frac{\ln \frac{P}{P_0}}{\frac{t}{4}}$	