Name ______________________

mobius

Exponential Function Solving - Decay (Continuous) - Scenario to Time

1

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

How would you solve for the time given this scenario?

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

2

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

How would you solve for the time given this scenario?

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

3

A radioactive material starts at an isotope concentration of 700ppm. It decays continuously at 6% per week. After a certain number of weeks it has decayed to an isotope concentration of 550ppm.

How would you solve for the time given this scenario?

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

4

A bacteria population starts at 700. It declines continuously at 6% per month. After a certain number of months it has decreased to a population of 518 bacteria.

How would you solve for the time given this scenario?

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

5

A radioactive material starts at an isotope concentration of 200ppm. It decays continuously at 8% per day. After a certain number of days it has decayed to an isotope concentration of 134ppm.

How would you solve for the time given this scenario?

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

6

A radioactive material starts at an isotope concentration of 700ppm. It decays continuously at 5% per week. After a certain number of weeks it has decayed to an isotope concentration of 573ppm.

How would you solve for the time given this scenario?

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

7

A bacteria population starts at 700. It declines continuously at 3% per year. After a certain number of years it has decreased to a population of 602 bacteria.

How would you solve for the time given this scenario?

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

8

A bird population starts at 700. It declines continuously at 8% per year. After a certain number of years it has decreased to a population of 340.

How would you solve for the time given this scenario?

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