Exponential Function Solution Equation - Growth (Continuous, Mis-matched Time Units) - Scenario to Time

1

A credit card starts with $500 of debt. It grows continuously at 9% interest per year. After a certain number of months the debt has grown to $598.

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

A $t = 12 \cdot \dfrac{\ln \frac{598}{500}}{0.09}$	B $t = -\dfrac{1}{12} \cdot \dfrac{\ln 598 \cdot 500}{0.09}$
C $t = 12 \cdot \dfrac{0.09}{\ln \frac{598}{500}}$	

2

A credit card starts with $900 of debt. It grows continuously at 8% interest per month. After a certain number of quarters the debt has grown to $1,575.

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

A	B
$t = -3 \cdot \dfrac{\ln 1575 \cdot 900}{0.08}$	$t = \dfrac{1}{3} \cdot \dfrac{\ln \frac{1575}{900}}{0.08}$

3

An insect population starts at 400. It grows continuously at 7% growth per month. After a certain number of years it has increased to a population of 751.

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

A $t = \dfrac{1}{12} \cdot \dfrac{\ln \frac{751}{400}}{0.07}$	B $t = 12 \cdot \dfrac{\ln \frac{751}{400}}{0.07}$
C $t = -12 \cdot \dfrac{\ln 751 \cdot 400}{0.07}$	

4

A bacteria population starts at 600. It grows continuously at 7% growth per day. After a certain number of years it has increased to a population of 1,126.

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

A $t = \dfrac{1}{365} \cdot \dfrac{0.07}{\ln \frac{1126}{600}}$	B $t = \dfrac{1}{365} \cdot \dfrac{\ln \frac{1126}{600}}{0.07}$
C $t = 365 \cdot \dfrac{\ln \frac{1126}{600}}{0.07}$	

5

An insect population starts at 200. It grows continuously at 8% growth per week. After a certain number of days it has increased to a population of 323.

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

A $t = 7 \cdot \dfrac{\ln \frac{323}{200}}{0.08}$	B $t = \dfrac{1}{7} \cdot \dfrac{\ln \frac{323}{200}}{0.08}$
C $t = 7 \cdot \dfrac{0.08}{\ln \frac{323}{200}}$	

6

A rabbit population starts at 600. It grows continuously at 4% growth per quarter. After a certain number of years it has increased to a population of 649 rabbits.

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

A $t = -4 \cdot \dfrac{\ln 649 \cdot 600}{0.04}$	B $t = 4 \cdot \dfrac{\ln \frac{649}{600}}{0.04}$
C $t = \dfrac{1}{4} \cdot \dfrac{\ln \frac{649}{600}}{0.04}$	

7

A credit card starts with $600 of debt. It grows continuously at 7% interest per month. After a certain number of quarters the debt has grown to $851.

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

A $t = 3 \cdot \dfrac{\ln \frac{851}{600}}{0.07}$	B $t = \dfrac{1}{3} \cdot \dfrac{\ln \frac{851}{600}}{0.07}$
C $t = -3 \cdot \dfrac{\ln 851 \cdot 600}{0.07}$	

8

A credit card starts with $300 of debt. It grows continuously at 2% interest per year. After a certain number of quarters the debt has grown to $345.

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

A $t = 4 \cdot \dfrac{\ln \frac{345}{300}}{0.02}$	B $t = \dfrac{1}{4} \cdot \dfrac{\ln \frac{345}{300}}{0.02}$
C $t = 4 \cdot \dfrac{0.02}{\ln \frac{345}{300}}$	D $t = -\dfrac{1}{4} \cdot \dfrac{\ln 345 \cdot 300}{0.02}$