Name ____________________

Exponential Function Solving - Growth (Continuous, Mis-matched Time Units) Scenario to Starting Value

1

An app starts with a certain number of downloads. Its download count grows continually by 9% each day.After 3 weeks it has 916 downloads.

How would you solve for the starting downloads given this scenario?

A	B
$A_0 = \frac{A}{e^{\left(\frac{r}{\frac{t}{7}}\right)}}$	$A_0 = \frac{A}{e^{(r \cdot t \cdot 7)}}$

2

A rabbit population starts at a certain size. It grows continuously at 8% growth per year. After 9 quarters it has increased to a population of 1,438 rabbits.

How would you solve for the starting population given this scenario?

A	B
$P_0 = \frac{e^{\left(r \cdot \frac{t}{4}\right)}}{P}$	$P_0 = \frac{P}{e^{\left(\frac{r}{t \cdot 4}\right)}}$
C $P_0 = \frac{P}{e^{\left(r \cdot \frac{t}{4}\right)}}$	

3

An app starts with a certain number of downloads. Its download count grows continually by 9% each year.After 5 months it has 940 downloads.

How would you solve for the starting downloads given this scenario?

A	B
$A_0 = \frac{A}{e^{\left(r \cdot \frac{t}{12}\right)}}$	$A_0 = \frac{e^{\left(r \cdot \frac{t}{12}\right)}}{A}$
C $A_0 = \frac{A}{e^{\left(\frac{r}{t \cdot 12}\right)}}$	

4

A bacteria population starts at a certain size. It grows continuously at 7% growth per year. After 2 days it has increased to a population of 460.

How would you solve for the starting population given this scenario?

A	B
$P_0 = \frac{P}{e^{\left(\frac{r}{t \cdot 365}\right)}}$	$P_0 = \frac{e^{\left(r \cdot \frac{t}{365}\right)}}{P}$
C $P_0 = \frac{P}{e^{\left(r \cdot \frac{t}{365}\right)}}$	

5

A savings account starts with a certain amount of cash. It grows continuously at 3% interest per year. After 7 months it has $1,110.

How would you solve for the starting cash given this scenario?

A	B
$P_0 = \frac{P}{e^{\left(\frac{r}{t \cdot 12}\right)}}$	$P_0 = \frac{P}{e^{\left(r \cdot \frac{t}{12}\right)}}$

6

A social media post starts with a certain number of views. Its view count grows continually by 5% each week.After 4 days it has 366 views.

How would you solve for the starting views given this scenario?

A	B
$V_0 = \frac{e^{\left(r \cdot \frac{t}{7}\right)}}{V}$	$V_0 = \frac{V}{e^{\left(r \cdot \frac{t}{7}\right)}}$

7

An insect population starts at a certain size. It grows continuously at 8% growth per day. After 2 weeks it has increased to a population of 469.

How would you solve for the starting population given this scenario?

A	B
$P_0 = \frac{e^{(r \cdot t \cdot 7)}}{P}$	$P_0 = \frac{P}{e^{(r \cdot t \cdot 7)}}$

8

A credit card starts with a certain amount of debt. It grows continuously at 8% interest per year. After 6 months the debt has grown to $1,454.

How would you solve for the starting debt given this scenario?

A	B
$D_0 = \frac{e^{\left(r \cdot \frac{t}{12}\right)}}{D}$	$D_0 = \frac{D}{e^{\left(\frac{r}{t \cdot 12}\right)}}$
C $D_0 = \frac{D}{e^{\left(r \cdot \frac{t}{12}\right)}}$	