



## Exponential Function Solution Equation - Decay (Continuous) Scenario to Starting Value

1

A radioactive material starts at a certain isotope concentration. It decays continuously at 8% per week. After 7 weeks it has decayed to an isotope concentration of 514ppm.

Rearrange the exponential equation to solve for for the starting concentration given this scenario?

A	$R_0 = \frac{514}{e^{(-0.08 \cdot 7)}}$	B	$R_0 = \frac{514}{e^{(-\frac{0.08}{7})}}$
---	---	---	---

C	$R_0 = \frac{e^{(-0.08 \cdot 7)}}{514}$
---	---

2

A radioactive material starts at a certain isotope concentration. It decays continuously at 5% per day. After 3 days it has decayed to an isotope concentration of 774ppm.

Rearrange the exponential equation to solve for for the starting concentration given this scenario?

A	$R_0 = \frac{774}{e^{(-\frac{0.05}{3})}}$	B	$R_0 = \frac{774}{e^{(-0.05 \cdot 3)}}$
---	---	---	---

C	$R_0 = \frac{e^{(-0.05 \cdot 3)}}{774}$
---	---

3

A bacteria population starts at a certain size. It declines continuously at 4% per year. After 5 years it has decreased to a population of 573 bacteria.

Rearrange the exponential equation to solve for for the starting population given this scenario?

A	$P_0 = \frac{e^{(-0.04 \cdot 5)}}{573}$	B	$P_0 = \frac{573}{e^{(-0.04 \cdot 5)}}$
---	---	---	---

C	$P_0 = \frac{573}{e^{(-\frac{0.04}{5})}}$
---	---

4

A bacteria population starts at a certain size. It declines continuously at 9% per year. After 6 years it has decreased to a population of 407 bacteria.

Rearrange the exponential equation to solve for for the starting population given this scenario?

A	$P_0 = \frac{407}{e^{(-\frac{0.09}{6})}}$	B	$P_0 = \frac{e^{(-0.09 \cdot 6)}}{407}$
---	---	---	---

C	$P_0 = \frac{407}{e^{(-0.09 \cdot 6)}}$
---	---

5

A radioactive material starts at a certain isotope concentration. It decays continuously at 8% per week. After 7 weeks it has decayed to an isotope concentration of 228ppm.

Rearrange the exponential equation to solve for for the starting concentration given this scenario?

A	$R_0 = \frac{e^{(-0.08 \cdot 7)}}{228}$	B	$R_0 = \frac{228}{e^{(-0.08 \cdot 7)}}$
---	---	---	---

6

A toxin starts at a certain concentration. It declines continuously at 3% per month. After 4 months it has decreased to a concentration of 620mg/L.

Rearrange the exponential equation to solve for for the starting concentration given this scenario?

A	$C_0 = \frac{620}{e^{(-0.03 \cdot 4)}}$	B	$C_0 = \frac{620}{e^{(-\frac{0.03}{4})}}$
---	---	---	---

7

A toxin starts at a certain concentration. It declines continuously at 3% per week. After 2 weeks it has decreased to a concentration of 470mg/L.

Rearrange the exponential equation to solve for for the starting concentration given this scenario?

A	$C_0 = \frac{470}{e^{(-0.03 \cdot 2)}}$	B	$C_0 = \frac{e^{(-0.03 \cdot 2)}}{470}$
---	---	---	---

8

A toxin starts at a certain concentration. It declines continuously at 7% per month. After 2 months it has decreased to a concentration of 347mg/L.

Rearrange the exponential equation to solve for for the starting concentration given this scenario?

A	$C_0 = \frac{347}{e^{(-\frac{0.07}{2})}}$	B	$C_0 = \frac{347}{e^{(-0.07 \cdot 2)}}$
---	---	---	---

C	$C_0 = \frac{e^{(-0.07 \cdot 2)}}{347}$
---	---