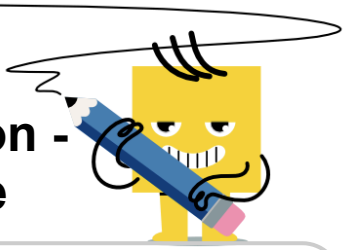
Name



Exponential Function Solution Equation - Decay (Continuous, Mis-matched Time Units) Scenario to Starting Value

1

A bird population starts at a certain size. It declines continuously at 4% per year. After 2 quarters it has decreased to a population of 830.

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

A $P_0 = \frac{830}{e^{(-0.04 \cdot \frac{2}{4})}}$

B $P_0 = \frac{e^{(-0.04 \cdot \frac{2}{4})}}{830}$

C $P_0 = \frac{830}{e^{(\frac{-0.04}{2 \cdot 4})}}$

2

A radioactive material starts at a certain isotope concentration. It decays continuously at 3% per day. After 2 weeks it has decayed to an isotope concentration of 753ppm.

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

A $R_0 = \frac{753}{e^{(\frac{-0.03}{\frac{2}{7}})}}$

B $R_0 = \frac{753}{e^{(-0.03 \cdot 2 \cdot 7)}}$

3

A toxin starts at a certain concentration. It declines continuously at 6% per day. After 7 weeks it has decreased to a concentration of 525mg/L.

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

A $C_0 = \frac{e^{(-0.06 \cdot 7 \cdot 7)}}{525}$

B $C_0 = \frac{525}{e^{(-0.06 \cdot 7 \cdot 7)}}$

C $C_0 = \frac{525}{e^{(\frac{-0.06}{7})}}$

4

A whale population starts at a certain size. It declines continuously at 4% per quarter. After 7 years it has decreased to a population of 151 whales.

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

A $P_0 = \frac{151}{e^{(\frac{-0.04}{7})}}$

B $P_0 = \frac{e^{(-0.04 \cdot 7 \cdot 4)}}{151}$

C $P_0 = \frac{151}{e^{(-0.04 \cdot 7 \cdot 4)}}$

5

A bird population starts at a certain size. It declines continuously at 8% per year. After 5 quarters it has decreased to a population of 201.

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

A $P_0 = \frac{e^{(-0.08 \cdot \frac{5}{4})}}{201}$

B $P_0 = \frac{201}{e^{(-0.08 \cdot \frac{5}{4})}}$

C $P_0 = \frac{201}{e^{(\frac{-0.08}{5 \cdot 4})}}$

6

A radioactive material starts at a certain isotope concentration. It decays continuously at 8% per day. After 6 hours it has decayed to an isotope concentration of 123ppm.

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

A $R_0 = \frac{e^{(-0.08 \cdot \frac{6}{24})}}{123}$

B $R_0 = \frac{123}{e^{(\frac{-0.08}{6 \cdot 24})}}$

C $R_0 = \frac{123}{e^{(-0.08 \cdot \frac{6}{24})}}$

7

A bird population starts at a certain size. It declines continuously at 7% per year. After 9 quarters it has decreased to a population of 426.

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

A $P_0 = \frac{e^{(-0.07 \cdot \frac{9}{4})}}{426}$

B $P_0 = \frac{426}{e^{(-0.07 \cdot \frac{9}{4})}}$

C $P_0 = \frac{426}{e^{(\frac{-0.07}{9 \cdot 4})}}$

8

A whale population starts at a certain size. It declines continuously at 7% per year. After 5 quarters it has decreased to a population of 211 whales.

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

A $P_0 = \frac{211}{e^{(-0.07 \cdot \frac{5}{4})}}$

B $P_0 = \frac{211}{e^{(\frac{-0.07}{5 \cdot 4})}}$

C $P_0 = \frac{e^{(-0.07 \cdot \frac{5}{4})}}{211}$