Name ______________________

mobius

Exponential Function Solving - Decay (Continuous, Mis-matched Time Units) Equation to Value at Time

1 Solve for the final concentration given this model of a continuous reduction of a toxin concentration?

$$C = 900 \cdot e^{\left(-0.05 \cdot \frac{3}{7}\right)}$$

A $C = C_0 \cdot e^{\left(-r \cdot \frac{t}{7}\right)}$	B $C = C_0 \cdot e^{\left(\frac{-r}{\frac{t}{7}}\right)}$
C $C = C_0 - e^{(-r \cdot t \cdot 7)}$	

2 Solve for the final population given this model of a continuous decline of a bird population?

$$P = 500 \cdot e^{\left(-0.03 \cdot \frac{6}{4}\right)}$$

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

3 Solve for the final population given this model of a a continuously declining bacteria population?

$$P = 200 \cdot e^{(-0.09 \cdot 7 \cdot 7)}$$

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

4 Solve for the final population given this model of a a continuously declining bacteria population?

$$P = 400 \cdot e^{\left(-0.08 \cdot \frac{3}{7}\right)}$$

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

5 Solve for the final population given this model of a continuous decline of a whale population?

$$P = 400 \cdot e^{\left(-0.02 \cdot \frac{5}{4}\right)}$$

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

6 Solve for the final concentration given this model of a continuous decay of a radioactive material?

$$R = 200 \cdot e^{(-0.07 \cdot 6 \cdot 24)}$$

A $R = R_0 \cdot e^{\left(\frac{-r}{t \cdot 24}\right)}$	B $R = R_0 \cdot e^{(-r \cdot t \cdot 24)}$

7 Solve for the final concentration given this model of a continuous reduction of a toxin concentration?

$$C = 900 \cdot e^{\left(-0.06 \cdot \frac{5}{7}\right)}$$

A $C = C_0 \cdot e^{\left(-r \cdot \frac{t}{7}\right)}$	B $C = C_0 \cdot e^{\left(\frac{-r}{\frac{t}{7}}\right)}$
C $C = C_0 - e^{(-r \cdot t \cdot 7)}$	

8 Solve for the final population given this model of a continuous decline of a bird population?

$$P = 400 \cdot e^{(-0.05 \cdot 6 \cdot 4)}$$

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