

Exponential Review Sheet Answers

1. $100 = 10 + (175 - 10)e^{k*(90)} \rightarrow k = -0.00673, \text{ so}$
 $32 = 10 + (175 - 10)e^{-0.00673t} \rightarrow t = \mathbf{299.176 \text{ minutes.}}$
 $175 = 10 + (200 - 10)e^{-0.00673t} \rightarrow t = \mathbf{20.948 \text{ minutes.}}$

2. $1,000 = 10e^{0.012t} \rightarrow t = \mathbf{383.764 \text{ units}}$

3. $P(t) = 750(1 + \frac{0.042}{12})^{12*10} \rightarrow P(10) = \mathbf{\$1140.63}$

4. $\frac{1}{2} = (1 - 0.0098)^t \rightarrow t = \mathbf{70.38 \text{ months}}$

5. Rate: $924 = 342e^{k*6} \rightarrow k = \mathbf{16.57\%}$

Equation: *We need to find P first ...* $924 = Pe^{0.1657*10} \rightarrow P = \mathbf{176.304}$, so the equation is $y = \mathbf{176.3e^{0.1657t}}$

Tripling time: $3 = e^{0.1657t} \rightarrow t = \mathbf{6.6 \text{ hours}}$

6. a. $\mathbf{P=250}$

b. $\mathbf{\text{Decrease to zero}}$

7. $50,000 = P(1 + \frac{0.0235}{12})^{12*18}$, so $\mathbf{P = \$32767.48}$
 $50,000 = 32767.48e^{0.025t} \rightarrow t = \mathbf{14.1 \text{ years}}$

8. $60 = 104(1 - 0.036)^t \rightarrow t = \mathbf{15.00 \text{ minutes}}$

9. $P(7) = 400e^{0.034*7} \rightarrow P(7) = \mathbf{\$507.48}$

10. $\frac{1}{2} = (1 - 0.076)^t \rightarrow t = \mathbf{8.769 \text{ days}}$