

Math 111 Quiz #4 Answers

1. (a) $\boxed{10 \text{ thousand}}$

(b) Since the growth factor is 0.6, the population is $\boxed{\text{decreasing each year by 40\%}}$.

(c) $P(2) = 10(0.6)^2 = 10(0.36) = \boxed{3.6 \text{ thousand.}}$

2. $\boxed{A = 3000(1.15)^t}$

3. We need to find a and b for our exponential function of the form $f(x) = a \cdot b^x$.

Here is one way to find a and b :

Using the two points given: $12 = a \cdot b^{-1}$ or $12 = \frac{a}{b}$ $3 = a \cdot b^1$

Solving for a in the first equation (You could use the 2nd one instead): $a = 12b$

Substituting this into the 2nd equation: $3 = 12b \cdot b \Rightarrow 3 = 12b^2$

Solving for b : $b = \frac{1}{2}$ Finding a : $a = 12(\frac{1}{2}) = 6$

So, the function is $\boxed{f(x) = 6(\frac{1}{2})^x}$