### Lesson 2 Practice Problems

1. In 1990, the value of a home is $170,000. Since then, its value has increased 5% per year.
	1. What is the approximate value of the home in the year 1993?
	2. Write an equation, in function notation, to represent the value of the home as a function of time in years since 1990, $t$.
	3. Will the value of the home be more than $500,000 in 2020 (assuming that the trend continues)? Show your reasoning.
2. The graph shows a wolf population which has been growing exponentially.
	1. What was the population when it was first measured?
	2. By what factor did the population grow in the first year?
	3. Write an equation relating the wolf population, $w$, and the number of years since it was measured, $t$.
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1. Here is the graph of an exponential function $f$.
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* Find an equation defining $f$. Explain your reasoning.
1. The equation $f\left(t\right)=24,​500⋅\left(0.88\right)^{t}$ represents the value of a car, in dollars, $t$ years after it was purchased.
	1. What do the numbers 24,500 and 0.88 mean?
	2. What does $f\left(9\right)$ represent?
	3. Sketch a graph that represents the function $f$ and shows $f\left(0\right),$ $f\left(1\right),$ and $f\left(2\right)$.
2. The first two terms of an exponential sequence are 18 and 6. What are the next 3 terms of this sequence?
* (From Unit 4, Lesson 1.)
1. A bacteria population has been doubling each day for the last 5 days. It is currently 100,000. What was the bacterial population 5 days ago? Explain how you know.
* (From Unit 4, Lesson 1.)
1. Select all expressions that are equivalent to $27^{\frac{1}{3}}$.
	1. 9
	2. 3
	3. $\sqrt{27}$
	4. $\sqrt[3]{27}$
	5. $\sqrt[3]{3^{3}}$
	6. $\frac{1}{27}$
	7. $\frac{1}{27^{3}}$
* (From Unit 3, Lesson 3.)



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