

## Lesson 16 Practice Problems

1. Automobiles start losing value, or depreciating, as soon as they leave the car dealership. Five years ago, a family purchased a new car that cost \$16,490.

If the car lost 13% of its value each year, what is the value of the car now?

2. The number of trees in a rainforest decreases each month by 0.5%. The forest currently has 2.5 billion trees.

Write an expression to represent how many trees will be left in 10 years. Then, evaluate the expression.

3. From 2005 to 2015, a population of  $P$  lions is modeled by the equation  $P = 1,500 \cdot (0.98)^t$ , where  $t$  is the number of years since 2005.

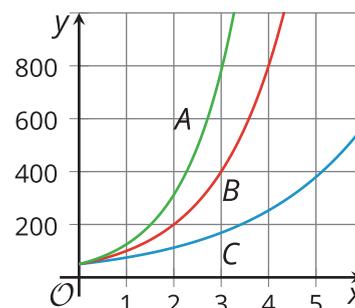
- a. About how many lions were there in 2005?
- b. Describe what is happening to the population of lions over this decade.
- c. About how many lions are there in 2015? Show your reasoning.

4. A bank account pays 0.5% monthly interest.

- a. If \$500 is put in the account, what will the balance be at the end of one year, assuming no additional deposits or withdrawals are made?
- b. What is the effective annual interest rate?
- c. Is the effective annual interest rate more or less than 6% (the nominal interest rate)?

5. Here are the graphs of three equations:  $y = 50 \cdot (1.5)^x$ ,  $y = 50 \cdot 2^x$ , and  $y = 50 \cdot (2.5)^x$ .

Which equation matches each graph? Explain how you know.



(From Unit 5, Lesson 12.)

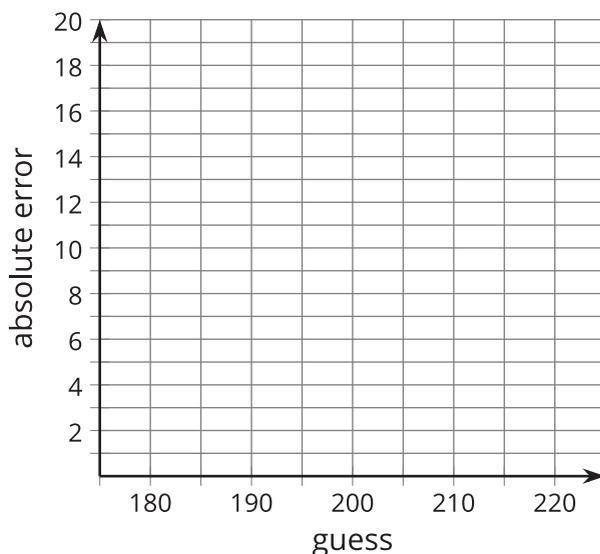
6. A major retailer has a staff of 6,400 employees for the holidays. After the holidays, they will decrease their staff by 30%.

How many employees will they have after the holidays?

(From Unit 5, Lesson 14.)

7. Ten students guessed the number of cubes in a jar that contains 202 cubes. Their names and guesses are listed in the table.

Create a scatter plot with the guesses as the horizontal values and the absolute guessing errors as the vertical values.



Andre	205
Clare	190
Diego	197
Elena	200
Han	220
Jada	210
Kiran	202
Lin	203
Mai	199
Noah	185

(From Unit 4, Lesson 13.)