

## 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.

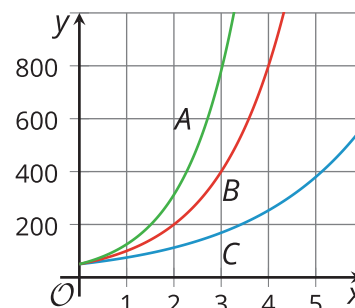
- a. About how many lions were there in 2005?
- b. Describe what is happening to the population of lions over this decade.
- c. About how many lions are there in 2015? Show your reasoning.

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.)

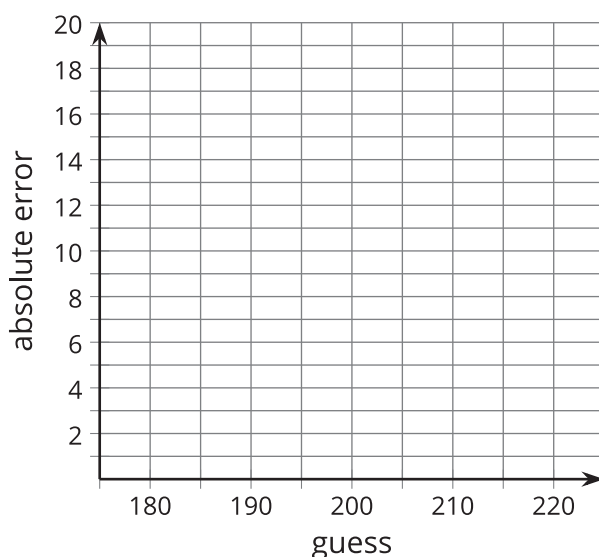
6. A major retailer has a staff of 6,400 employees for the holidays. After the holidays, they will decrease their staff by 30%.

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.)