Name _____ Date _____

Use the following scenario and graph for questions 1 – 5.

Mr. Anderson's pond had a water level of 10 feet at the beginning of the summer. Due to evaporation, the water level dropped one-half foot each week. The graph below represents the water level over a 12-week period.

Pond
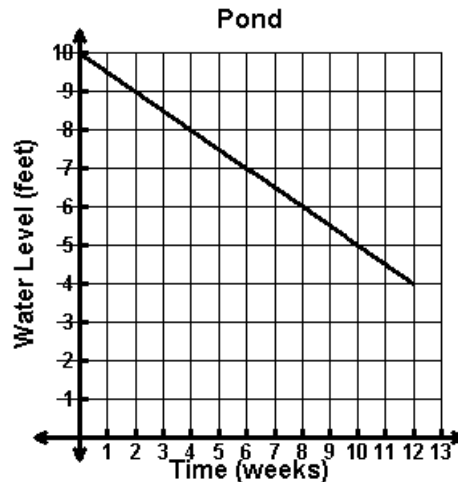
1. What is the domain for this scenario?
   $0 \leq x \leq 12$

2. What is the range for this scenario?
   $4 \leq y \leq 10$

3. If Mr. Anderson checks the water level for 16 weeks instead of 12 weeks, what would be the new domain for the scenario?
   $0 \leq x \leq 16$

4. If the original water level was 14 feet, what would be the range for the 12-week period?
   $8 \leq y \leq 14$

5. If the water level dropped three-fourths of a foot each week instead of one-half foot each week, what would be the domain and range for the 12-week period?
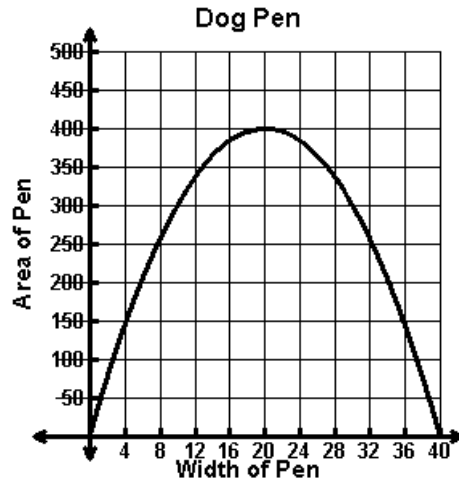
   Domain: $0 \leq x \leq 12$
   Range: $1 \leq y \leq 10$

Name _____ Date _____

Use the following scenario and graph for questions 6 – 9.

Andrea has 80 feet of fencing that she will use to make a rectangular pen for her dog. The graph below shows the area of the pen as a function of the width of the pen.

Dog Pen

Area of Pen (y-axis), Width of Pen (x-axis)

6. What is the domain for the scenario?
   $0 < x \leq 40$

7. What is the range for the scenario?
   $0 < y \leq 400$

Andrea decides to decrease the fencing she will use for the rectangular pen from 80 feet to 60 feet. The new equation to find the area of the pen when x is the width in feet will be $y = 30x - x^2$. The graph of the equation is shown below.

Dog Pen

Area of Pen (y-axis), Width of Pen (x-axis)

Name _____ Date _____
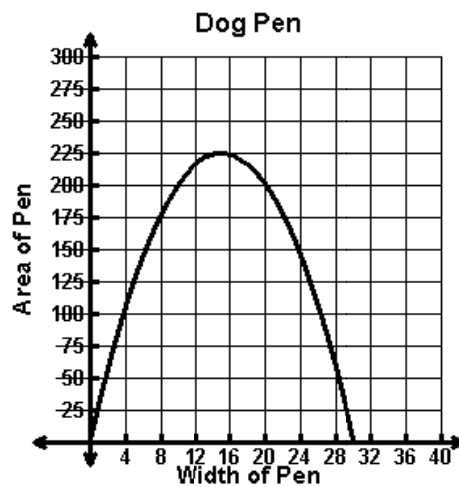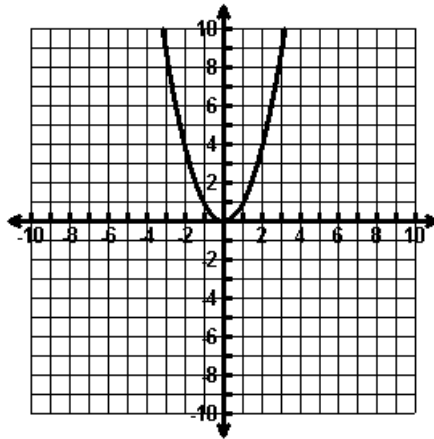
8. What is the domain for this scenario?
   $0 < x \le 30$

9. What is the range for this scenario?
   $0 < x \le 225$

Use the following equation and graph for questions 10 – 12.

The graph of $y = x^2$ is shown below.

10. What is the domain of the function?
    all real numbers

11. What is the range of the function?
    $y \ge 0$

12. If the parabola is translated up 3 units, what is the new domain and range?

    Domain: ***all real numbers***
    Range: ***$y \ge 3$***

Name _____ Date _____

Use the following scanrio and graph for questions 13 – 15.

Andrew is saving money to buy a used car that costs $6500. He has $3000 in his account and plans to save $100 a week until he has the money to buy the car. The graph below represents the amount of money Andrew has saved in relation to the number of weeks he will save.

Andrew's Savings
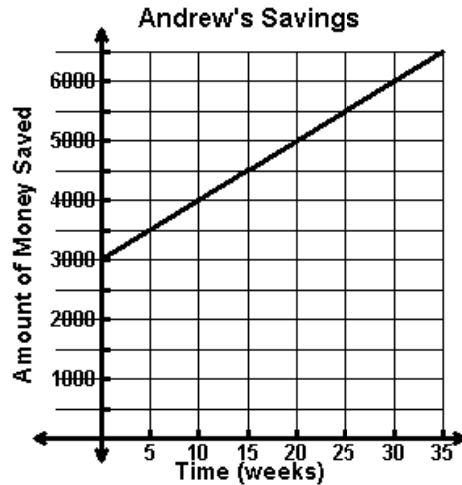
13. What is the domain for this scenario?
    $0 \leq x \leq 35$

14. What is the range for this scenario?
    $3000 \leq y \leq 6500$

15. If Andrew decides to buy a car that costs $7,000, what would be the domain and range for this new scenario?

    Domain: $0 \leq x \leq 40$
    Range: $3000 \leq y \leq 7000$