

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**UNIT 3 • MODELING AND ANALYZING QUADRATIC FUNCTIONS**

**Lesson 3: Interpreting and Analyzing Quadratic Functions**

**Practice 3.3.2: Identifying the Domain and Range of a Quadratic Function**

**A**

Use graphing technology to determine the domain and range of each quadratic function.

1.  $y = -x^2 + 7x + 1$

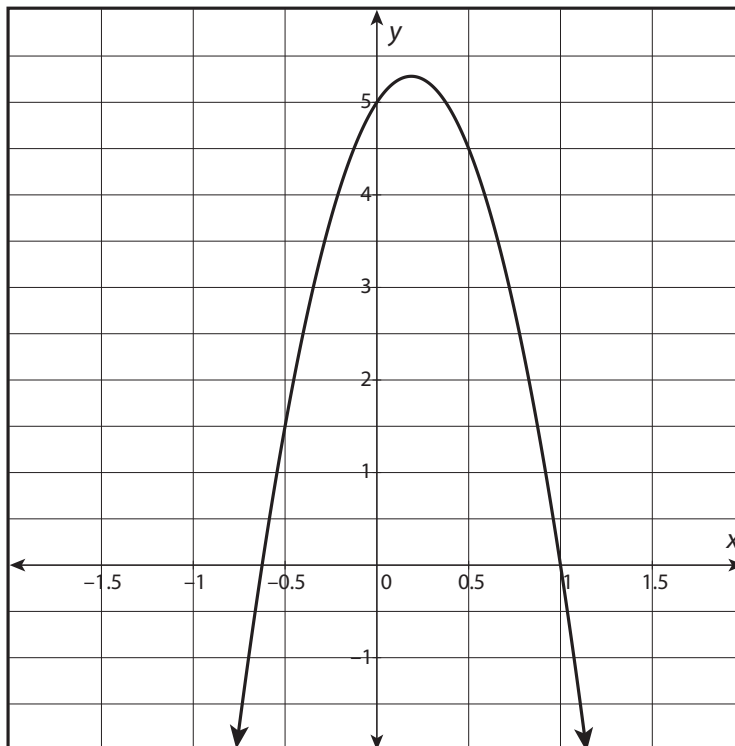
2.  $y = -\frac{3}{5}x^2 + 21x - 3$

3.  $f(x) = 4x^2 + 5x - 12$

4.  $g(x) = x^2 + 12x - 8$

Describe the domain and range of each of the following functions in words and as an inequality.

5.



*continued*

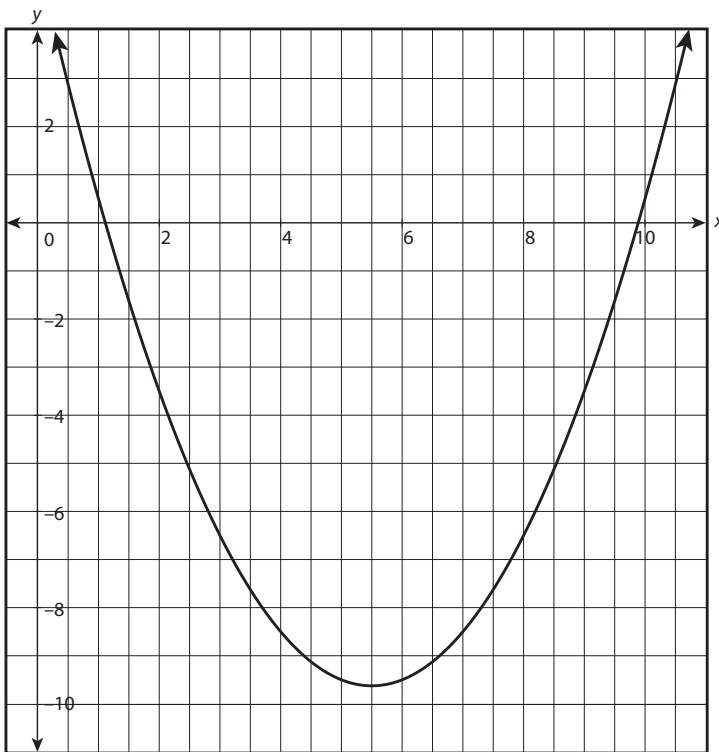
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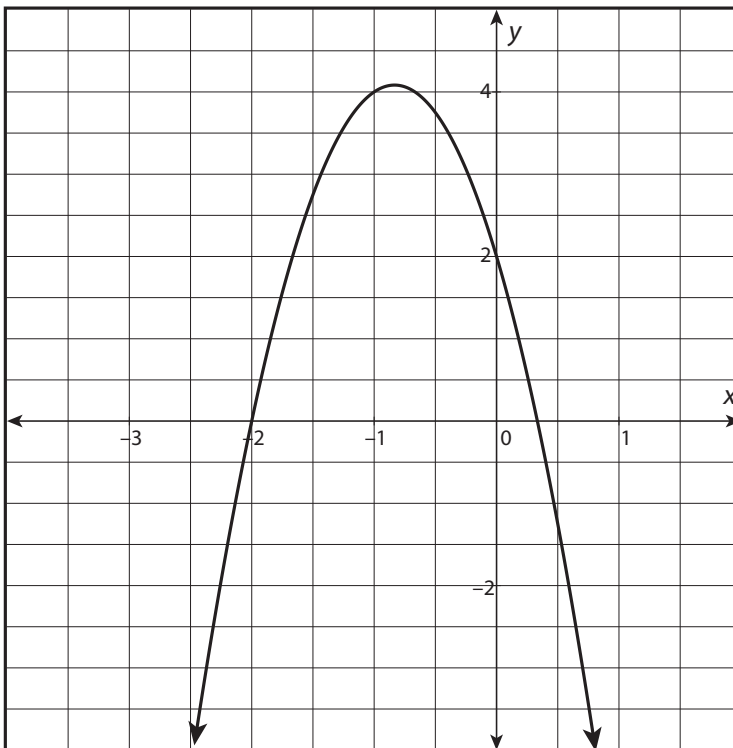
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6.



7.



*continued*

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Use the given information to solve the following problems.

8. A soccer ball is kicked from the ground and travels a parabolic path. The path can be modeled by the function  $h(t) = -5t^2 + 19.5t$ , where  $h(t)$  is the height of the soccer ball in meters above the ground  $t$  seconds after being kicked. Assuming the ball lands on level ground, about how long is the ball in the air?
  
  
  
  
  
  
  
  
  
  
9. A golf ball is shot from the ground using a practice cannon and travels a parabolic path. The path of the ball can be modeled by the function  $h(t) = -16t^2 + 150t$ , where  $h(t)$  is the height of the golf ball in meters above the ground  $t$  seconds after being shot. Assuming the ball lands on level ground, about how long does it take the golf ball to hit the ground?
  
  
  
  
  
  
  
  
  
  
10. The senior class is putting on a talent show to raise money for their senior trip. In the past, the profit from the talent show could be modeled by the function  $P(x) = -16x^2 + 600x - 4000$ , where  $x$  represents the ticket price in dollars. What are a reasonable domain and range for this function? For what domain value will the profits be maximized?