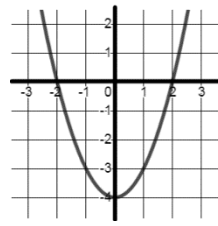


Semester 2 Final Review D  
Mixed Quadratics

1. Find the  $y$ -intercept of the graph  $y = -x^2 - 5x + 8$ .
- A. (0, 8)
  - B. (0, -8)
  - C. (8, 0)
  - D. (-8, 0)

2. What are the root(s) of the quadratic equation whose related function is graphed? **Select all that apply.**

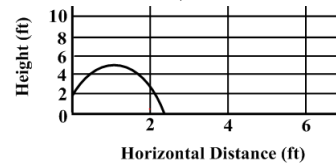


- A. (-4, 0)
- B. (-2, 0)
- C. (-2, 2)
- D. (2, 0)
- E. (0, -2)
- F. (0, -4)
- G. (0, 2)

3. Solve the quadratic equation by factoring, completing the square or by using the quadratic formula. Round to the nearest tenth, if necessary.  
 $9x^2 + 28x + 3 = 0$

- A. {0.1, 3.0}
- B.  $\{-\frac{1}{3}, \frac{1}{9}\}$
- C.  $\{-\frac{1}{9}, \frac{1}{3}\}$
- D. {-3.0, -0.1}

4. Nadia hits a baseball up into the air from a height of 2 feet. The graph represents the height of the baseball above the ground, in feet, as a function of the horizontal distance the ball travels, in feet.



- Which of the following statements describe the path of the ball? Select **two** that apply.

- A. When the ball is at a horizontal distance of 2 ft, it is rising.
- B. When the ball is at a horizontal distance of 2 ft, it is falling.
- C. The ball lands on the ground 4 ft away from where it was hit.
- D. The ball lands less than 4 ft away from where it was hit.

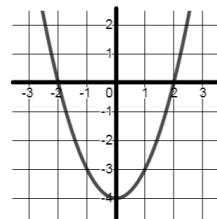
5. Claire is kicking a ball into the air. The path of the ball can be modeled by a quadratic equation where the point (0, 8) represents the vertex and the  $x$ -axis represents the ground.

Which equation(s) could represent the location of the ball when it hits the ground? **Select all that apply.**

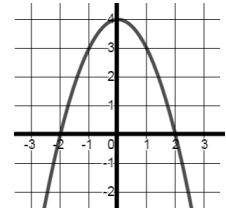
- A.  $0 = -(x)(x - 8)$
- B.  $0 = -x^2 - 8$
- C.  $0 = -(x + 8)^2$
- D.  $0 = -(x - 8)^2$
- E.  $0 = -x^2 + 8$
- F.  $0 = -(x)(x + 8)$

6. Which of the following represents the graph of  $f(x) = 3(x + 2)(x - 2)$ ?

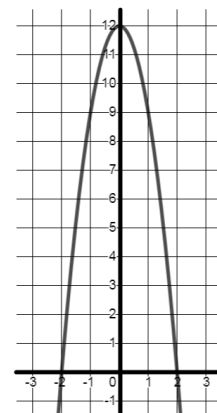
A.



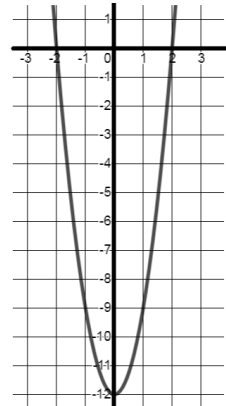
B.



C.



D.



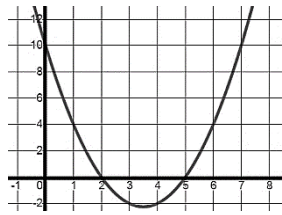
7. What is the RANGE of  $f(x) = (x - 4)^2 + 6$ ?

- A. all real numbers greater than or equal to -6
- B. all real numbers greater than or equal to 6
- C. all real numbers  $4k$ , where  $k$  is a non-negative integer
- D. all real numbers

8. Solve the quadratic equation by factoring, completing the square, or by using the Quadratic Formula. Round to the nearest tenth, if necessary.  $x^2 - 16x + 48 = 0$

- A.  $\{-12, 4\}$
- B.  $\{4, 12\}$
- C.  $\{-4, 12\}$
- D.  $\{-12, -4\}$

9. What are the root(s) of the quadratic equation whose related function is graphed? **Select all that apply.**



- A. (2, 0)
- B. (0, 2)
- C. (10, 0)
- D. (0, 10)
- E. (3.5, -2.1)
- F. (0, 5)
- G. (5, 0)

10. Lucy found that the solutions to a quadratic equation were 15 and  $-14$ . Which of the following descriptions of the quadratic equation are true? Select *all* that apply.

- A. The factors are  $(x + 15)$  and  $(x - 14)$ .
- B. The  $x$ -intercepts of the graph are 15 and  $-14$ .
- C. The  $x$ -intercepts of the graph are  $-15$  and 14.
- D. The equation is  $f(x) = (x + 15)(x - 14)$ .
- E. The factors are  $(x - 15)$  and  $(x + 14)$ .
- F. The equation is  $f(x) = (x - 15)(x + 14)$ .

11. Solve the equation using the quadratic formula (*you must use the quadratic formula and show your work to get credit*).

$$x^2 - 26x + 157 = 0$$

12. Autumn is kicking a ball into the air. The path of the ball can be modeled by a quadratic equation where the point (1, 9) represents the vertex and the  $x$ -axis represents the ground.

Which equation(s) could represent the location of the ball when it hits the ground? **Select all that apply.**

- A.  $0 = -(x + 2)(x - 4)$
- B.  $0 = -(x + 1)^2 + 9$
- C.  $0 = -(x - 2)(x + 4)$
- D.  $0 = -x^2 + 2x + 8$
- E.  $0 = -x^2 - 2x + 8$
- F.  $0 = -(x - 1)^2 + 9$

13. Find the  $y$ -intercept of the graph  $y = -5x^2 + x - 7$ .

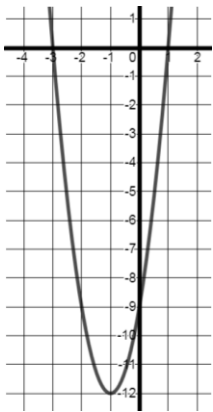
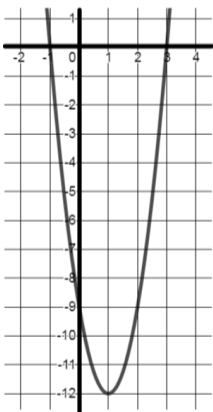
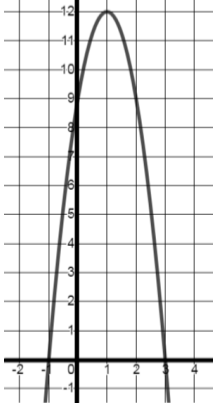
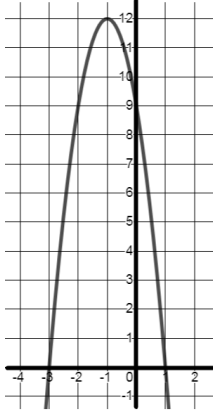
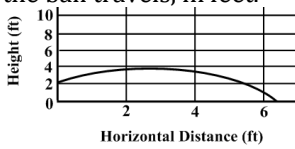
- A.  $(-7, 0)$
- B.  $(7, 0)$
- C.  $(0, 7)$
- D.  $(0, -7)$

14. Solve the quadratic equation by factoring, completing the square or by using the quadratic formula. Round to the nearest tenth, if necessary.

$$6x^2 + 19x - 77 = 0$$

- A.  $\left\{-\frac{7}{3}, \frac{11}{2}\right\}$
- B.  $\left\{-\frac{11}{2}, \frac{7}{3}\right\}$
- C.  $\{-23.3, 55.0\}$
- D.  $\{-55.0, 23.3\}$

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

<p>15. What is the RANGE of <math>f(x) = -(x - 2)^2 + 5</math>?</p> <p>A. all real numbers less than or equal to 5          B. all real numbers          C. all real numbers <math>2k</math>, where <math>k</math> is a non-positive integer          D. all real numbers less than or equal to -5</p>	<p>16. Solve the equation using the quadratic formula (<i>you must use the quadratic formula and show your work to get credit</i>).</p> $x^2 + 8x + 13 = 0$
<p>17. Solve the quadratic equation by factoring, completing the square, or by using the Quadratic Formula. Round to the nearest tenth, if necessary. <math>x^2 + x - 132 = 0</math></p> <p>A. {11, 12}          B. {-12, 11}          C. {-11, 12}          D. {-12, -11}</p>	<p>18. Jonas found that the solutions to a quadratic equation were 1 and 20. Which of the following descriptions of the quadratic equation are true? Select <i>all</i> that apply.</p> <p>A. The factors are <math>(x + 1)</math> and <math>(x + 20)</math>.          B. The <math>x</math>-intercepts of the graph are 1 and 20.          C. The <math>x</math>-intercepts of the graph are <math>-1</math> and <math>-20</math>.          D. The equation is <math>f(x) = (x - 1)(x - 20)</math>.          E. The factors are <math>(x - 1)</math> and <math>(x - 20)</math>.          F. The equation is <math>f(x) = (x + 1)(x + 20)</math>.</p>
<p>19. Which of the following represents the graph of <math>f(x) = -3(x - 1)(x + 3)</math>?</p> <p>A. </p> <p>B. </p> <p>C. </p> <p>D. </p>	<p>20. Fred hits a baseball up into the air from a height of 2 feet. The graph represents the height of the baseball above the ground, in feet, as a function of the horizontal distance the ball travels, in feet.</p>  <p>Which of the following statements describe the path of the ball? Select <b>two</b> that apply.</p> <p>A. When the ball is at a horizontal distance of 4 ft, it is falling.          B. When the ball is at a horizontal distance of 2 ft, it is falling.          C. The ball lands on the ground more than 6 ft away from where it was hit.          D. The ball lands on the ground 6 ft away from where it was hit.</p>

**Semester 2 Final Review D**

**Mixed Quadratics Answers:**

1. A	2. B & D	3. D	4. B & D	5. E
6. D	7. B	8. B	9. A & G	10. B, E & F
11. $13 \pm 2\sqrt{3}$	12. A, D & F	13. C	14. B	15. A
16. $-4 \pm \sqrt{3}$	17. B	18. B, D & E	19. D	20. A & C