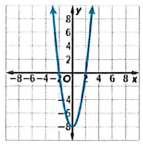
NAME Answer Key DATE _____ PERIOD _____

REVIEW FOR SEMESTER 1 FINAL – ALGEBRA II 2019-2020

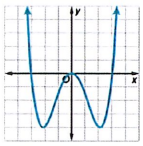
1.1 Functions and Continuity · Form C

Mixed Exercises

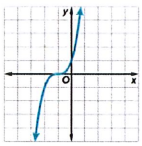
STRUCTURE Write the domain and range of each function in set-builder and interval notation. Determine whether each function is *one-to-one, onto, both,* or *neither*. Then state whether it is *discrete, continuous,* or *neither* discrete nor continuous.

1. 

D (−∞, ∞)
R [−8, ∞)
neither
continuous

2. 

D (−∞, ∞)
R (−∞, ∞)
neither
continuous

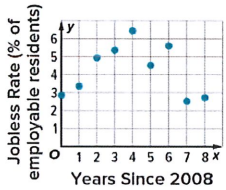
3. 

D (−∞, ∞)
R (−∞, ∞)
both
continuous

4. SPRINGS When a weight up to 15 pounds is attached to a 4-inch spring, the length L, in inches, that the spring stretches it is represented by the function $L(w) = \frac{1}{2}w + 4$, where w is the weight, in pounds, of the object. State the domain and range of the function. Then determine whether it is *one-to-one, onto, both,* or *neither* and whether it is *discrete, continuous,* or *neither* discrete nor continuous. D [0, 15] one-to-one
R [4, 11.5] continuous

5. CASHEWS An airport snack stands sells whole cashews for $12.79 per pound. Determine whether the function that models the cost of cashews is *discrete*, *continuous*, or *neither* discrete nor continuous. Then state the domain and range of the function.
D: [0, ∞) R [0, ∞) continuous

6. LABOR A town's annual jobless rate is shown in the graph. Determine whether the function that models the jobless rate is *one-to-one*, *onto*, *both*, or *neither*. Then state whether it is *discrete*, *continuous*, or *neither* discrete nor continuous. one-to-one
discrete



7. SHIPPING The table shows the cost to ship a package based on the weight of the package. Determine whether the function that models the shipping cost is *discrete*, *continuous*, or *neither* discrete nor continuous. Then state the domain and range of the function.
neither D [0, ∞) R: [4] ∪ [6] ∪ [6.5, ∞)

Package Weight (lbs)	Cost
up to 5 pounds	$4
5–10 pounds	$6
exceeds 10 pounds	$0.65/lb

1.2 Linearity, Intercepts, and Symmetry · Form C

Mixed Exercises

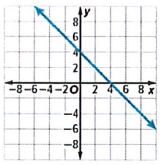
Determine whether each equation represents is a linear function. Justify your answer. Algebraically determine whether each equation is even, odd, or neither.

8. $y = \sqrt{x} + 3$
not linear, neither

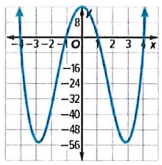
9. $y = 3x^2 - 1$
not linear, even

10. $y = 2x^3 + x + 1$
not linear, neither

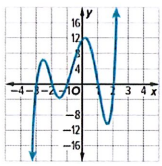
Determine whether each graph represents a *linear* or *nonlinear* function. Use the graph to estimate the *x*- and *y*-intercepts. Identify the type of symmetry in each graph.

11. 

linear
(4, 0)
(0, 4)

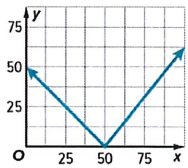
12. 

nonlinear
(−4, 0) (4, 0)
(1, 0) (4, 0)
(0, 16)

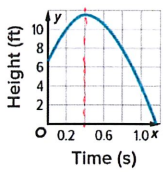
13. 

nonlinear
(0, 10)
(−3, 0) (−1, 0) (1, 0) (2, 0)

14. GAMES Pedro is creating an online racquetball game. In one play, the motion of the ball across the screen is partially modeled by the graph shown. State whether the graph has line symmetry or point symmetry, and identify any lines or points of symmetry. line, x = 50



15. BASKETBALL Tiana tossed a basketball. The graph shows the height of the basketball as a function of time. State whether the graph has line symmetry or point symmetry, and identify any lines of symmetry or points of symmetry. line, x = 0.4



16. PROFIT Stefon charges people $25 to test the air quality in their homes. The device he uses to test air quality cost him $500. The function
$y = 25x - 500$ describes Stefon's net profit, y, as a function of the number of clients he gets, x.
a. State whether the function is a linear function. Write *yes* or *no*. Explain. yes, x'.
b. What do the *x*- and *y*-intercepts of the function represent in terms of the situation?
(0, 500) initial cost (20, 0) breakeven

NAME _____ DATE _____ PERIOD _____

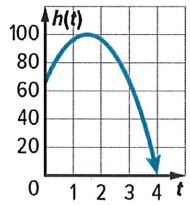
17. **VOLUME** The function, $f(r) = \frac{4}{3}\pi r^3$ describes the relationship between the volume $f(r)$ and radius r of a sphere. Determine whether the function is *odd*, *even*, or *neither*. Explain your reasoning.

odd, $f(-r) = -f(r)$

1.3 Extrema and End Behavior · Form C

Mixed Exercises

18. **MODEL** The height of a fish t seconds after it is thrown to a dolphin from a 64-foot-tall platform can be modeled by the equation $h(t) = -6t^2 + 48t + 64$, where $h(t)$ is the height of the fish in feet. The graph of the polynomial is shown.



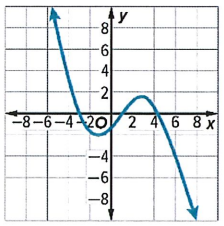
   a. Estimate the t-coordinate at which the height of the fish changes from increasing to decreasing. Describe the meaning in terms of the context of the situation. (1.5, 100)

   b. Describe and interpret the end behavior of $h(t)$ in the context of the situation.

$x \to 4$, $h(t) \to 0$. fish hits the water

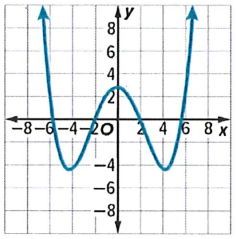
Identify and estimate the *x*- and *y*-values of the extrema. Round to the nearest tenth if necessary. Then use the graphs to describe the end behavior of each function.

19.



min (−1, −2)
max (3, 2)
$x \to -\infty$, $f(x) \to \infty$
$x \to \infty$, $f(x) \to -\infty$

20.



min (−4, −4), (4, −4)
max (0, 3)
$x \to -\infty$, $f(x) \to \infty$
$x \to \infty$, $f(x) \to \infty$

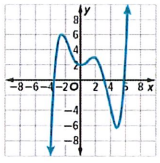
21. **SCIENCE** The table shows the density of water at its saturation pressure for various temperatures. Interpret the end behavior of the graph of the function as temperature increases.

Temperature (°C)	0	50	100	150	200	250	300	350
Density (g/cm³)	1.000	0.988	0.958	0.917	0.865	0.799	0.713	0.573

$x \to \infty, f(x) \to 0$

Identify and estimate the *x*- and *y*-values of the extrema. Round to the nearest tenth if necessary. Then use the graphs to describe the end behavior of each function.

22.



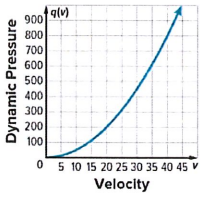
max (−2, 6), (2, 5)
min (0, 2), (4.5, −6)
$x \to -\infty$, $f(x) \to -\infty$
$x \to \infty$, $f(x) \to \infty$

USE ESTIMATION **Use a graphing calculator to estimate the *x*-coordinates at which any extrema occur for each function. Round to the nearest hundredth.**

23. $f(x) = -2x^3 + 8$ see graph

24. $f(x) = x^5 - 4x^3 + 3x^2 - 8x - 6$ see graph

25. **CHEMISTRY** Dynamic pressure is generated by the velocity of a moving fluid and is given by $q(v) = \frac{1}{2}pv^2$, where p is the density of the fluid and v is the velocity of the fluid. Water has a density of 1 g/cm³. What happens to the dynamic pressure of water when the velocity continuously increases?



$x \to \infty$, $f(x) \to \infty$

1.4 Sketching Graphs and Comparing Functions · Form C

Examples 1 and 2

Use the key features of each function to sketch its graph.

26. ***x*-intercept:** (−3, 0) and (2, 0)
***y*-intercept:** (0, −4)
Linearity: nonlinear see graph
Continuity: continuous
Positive: for values $x < -3$ and $x > 2$
Negative: for values of $-3 < x < 2$
Increasing: for all values of $x > 0$
Decreasing: for all values of $x < 0$
Extrema: minimum at (0, −4)
End Behavior: As $x \to \infty$, $f(x) \to \infty$ and as $x \to -\infty$, $f(x) \to \infty$.

27. ***x*-intercept:** (−2, 0) and (2, 0)
***y*-intercept:** (0, −1)
Linearity: nonlinear see graph
Continuity: continuous
Symmetry: symmetric about the line $x = 0$
Positive: for values $x < -2$ and $x > 2$
Negative: for values of $-2 < x < 2$
Increasing: for all values of $x > 0$
Decreasing: for all values of $x < 0$
Extrema: minimum at (0, −1)
End Behavior: As $x \to -\infty$, $f(x) \to \infty$ and as $x \to \infty$, $f(x) \to \infty$.

NAME _____ DATE _____ PERIOD _____

MIXED EXERCISES

28. USE A MODEL Sketch the graph of a linear graph with the following key features. The x-intercept is 2. The y-intercept is 2. The function is decreasing for all values of x. The function is positive for $x < 2$. As $x \to -\infty$, $f(x) \to \infty$ and as $x \to \infty$, $f(x) \to -\infty$.

29. SKI LIFT A ski lift descends at a steady pace down a mountainside from a height of 1800 feet to ground level. If it makes no stops along the way to load or unload passengers, then the time it takes to complete its descension is 4 minutes.

a. Is the graph that relates the lift's height as a function of time linear or nonlinear? Explain.

b. Use the key features to sketch a graph.

1.5 Graphing Linear Functions and Inequalities · Form C

Mixed Exercises

Graph each equation or inequality. see graphs for 30-36

30. $x + y = 1$

31. $x + 2y > 6$

32. $y + 3 = 0$

33. $y = -2x + 3$

34. $2y + 3 \leq 11$

35. $6x + 4y \leq -24$

36. REASONING Name the x- and y-intercept for the linear equation given by $6x - 2y = 12$. Use the intercepts to graph the equation and describe the graph as *increasing*, *decreasing*, or *constant*.

37. SPIRITWEAR A company makes long-sleeved and short-sleeved shirts. The profit on a long-sleeved shirt is \$7 and the profit on a short-sleeved shirt is \$4. How many shirts must the company sell to make a profit of at least \$280? $7x + 4y \geq 280$

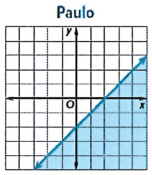
a. Write and graph a linear inequality to describe this situation.

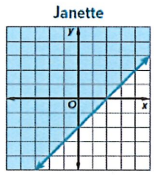
b. Write two possible solutions to the problem. any within shaded region

c. Which values are reasonable for the domain and for the range? Explain.

d. The point (–10, 90) is in the shaded region. Is it a solution of the problem? Explain your reasoning.

38. FIND THE ERROR Paulo and Janette are graphing $x - y \geq 2$. Is either of them correct? Explain your reasoning. Paulo, need to switch inequality





2.1 Solving Linear Equations and Inequalities · Form C

Mixed Exercises

Solve each equation.

39. $-3b + 7 = -15 + 2b$ $b = 22/5$

40. $a - \frac{2a}{5} = 3$ $a = 9$

41. $2.2n + 0.8n + 5 = 4n$ $n = 5$

Solve each inequality. Graph the solution set on a number line.

42. $\frac{4x-3}{2} \geq -3.5$ see graph

43. $1 + 5(x - 8) \leq 2 - (x + 5)$

44. $-36 - 2(w + 77) > -4(2w + 52)$ see graph

45. PRECISION The formula to convert temperature in degrees Fahrenheit to degrees Celsius is $\frac{5}{9}(F - 32) = C$.

a. Solve the equation for F. $F = \frac{9}{5}C + 32$

b. Use your result from part a to determine the temperature in degrees Fahrenheit when the Celsius temperature is 30. 86

c. At a certain temperature, a Fahrenheit thermometer and a Celsius thermometer will read the same temperature. Write and solve an equation to find the temperature. -40

46. PERSEVERE Solve $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ for y_1. $y_1 = -\sqrt{d^2 - (x_2 - x_1)^2} + y_2$

2.2 Solving Absolute Value Equations and Inequalities · Form C

Mixed Exercises

Solve each equation. Check your solutions.

47. $8x = 2|6x - 2|$ $x = 1$ $x = 1/5$

48. $8z + 20 > -|2z + 4|$ $z > -2.4$ $z > -8/3$

REASONING Write an absolute value equation to represent each situation. Then solve the equation and discuss the reasonableness of your solution given the constraints of the absolute value equation.

49. The absolute value of the sum of 4 times a number and 7 is the sum of 2 times a number and 3. $|4n + 7| = 2n + 3$

NAME _____ DATE _____ PERIOD _____

50. **MODELING** A carpenter cuts lumber to the length of 36 inches. For her project, the lumber must be accurate within 0.125 in.

a. Write an inequality to represent the acceptable length of the lumber. Explain your reasoning. $|x - 36| \leq 0.125$

b. Solve the inequality. Then state the maximum and minimum length for the rods.

$35.875 \leq x \leq 36.125$

Solve each inequality. Graph the solution set on a number line.

51. $6|4p + 2| - 8 < 34$ see graph

52. $\frac{|2w+8|}{5} \geq 3$ see graph

53. $-\frac{7}{8}|2x + 5| > 14$

54. **PROJECTILE** An object is launched into the air and then falls to the ground. Its velocity is modeled by the equation $v = 200 - 32t$, where the velocity v is measured in feet per second and time t is measured in seconds. The object's speed is the absolute value of its velocity. Write and solve a compound inequality to determine the time intervals in which the speed of the object will be between 40 and 88 feet per second. Interpret your solution in the context of the situation.

2.3 Equations of Linear Functions · Form C

Mixed Exercises

REGULARITY **Write linear equations in standard form, slope-intercept form, and point-slope form that satisfy each set of conditions.**

55. slope of –2, passes through (6, –7)

$2x+y=19$; $y=-2x+19$; $y-7=-2(x-6)$

56. x-intercept: 3, y-intercept: 5

$5x+3y=15$; $y=\frac{-5}{3}x+5$; $y-5=\frac{-5}{3}(x-0)$

57. passes through (4, –1) and (8, 3)

$x-y=5$; $y=x-5$; $y-3=(x-8)$

58. slope of 0.6, passes through (1, 1)

$6x-10y=4$; $y=0.6x+0.4$; $y-1=0.6(x-1)$

59. **STATE YOUR ASSUMPTION** The surface of Grand Lake is at an elevation of 648 feet. During a drought, the water level drops at a rate of 3 inches per day. Write an equation in slope-intercept form that gives the elevation in feet y of the surface of Grand Lake after x days. Explain any assumptions you made to write the equation. $y = -\frac{1}{4}x + 648$

60. **CREATE** Write an equation in point-slope form of a line with an x-intercept of 3.

$y = 4x - 12$

61. **WRITE** Why is it important to be able to represent linear equations in more than one form?

different situations need different forms

2.4 - Solving Systems of Equations Graphically · Form C

Example 1

Determine the number of solutions for each system. Then state whether the system of equations is *consistent* or *inconsistent* and whether it is *independent* or *dependent*.

62. $y = x - 5$
$-2x + 2y = -10$
consistent & dependent

65. $3x + y = -2$
$6x + 2y = 10$
inconsistent

64. $3x - y = 2$
$x + y = 6$
(2, 4)
consistent & independent

Examples 2 and 3

Solve the system of equations by graphing.

65. $-4x + 6y = -2$
$2x - 3y = 1$
consist & dep.

66. $y - x = 3$
$y = 1$
(-2, 1)
consist & indep.

67. $5x - y = 4$
$-2x + 6y = 4$
(1, 1)
consist & indep.

~~**Example 6**~~

~~**USE TOOLS** **Use a graphing calculator to solve each system of equations. Round the coordinates to the nearest hundredth, if necessary.**~~

~~**68.** $-4.7x + 16 = 16.79x - 80.2$~~

~~**69.** $471 - 63x = -50.5x + 509$~~

2.5 - Solving Systems of Equations Algebraically · Form C

Examples 1 and 2

Use substitution to solve each system of equations.

70. $2x - y = 7$
$6x - 3y = 14$
no solution

71. $3x + y = 7$
$4x + 2y = 16$
(-1, 10)

72. $2x + y = 8$
$3x + \frac{3}{2}y = 12$
inf. solutions

NAME _____ DATE _____ PERIOD _____

Examples 4-6

Use elimination to solve each system of equations.

73. $5x + 2y = 12$
$-6x - 2y = -14$ (2, 1)

74. $3x - 5y = -9$
$-7x + 3y = 8$ $(\frac{1}{2}, \frac{21}{10})$

75. $6w - 8z = 16$
$3w - 4z = 8$ inf Solutions

76. The sum of two numbers is 12. The difference of the same two numbers is –4. Find the two numbers. (4, 8)

77. Twice a number minus a second number is –1. Twice the second number added to three times the first number is 9. Find the two numbers. (1, 3)

2.6 Solving Systems of Inequalities · Form C

Example 1

Solve each system of inequalities. see graphs 78-80

78. $3x - 2y \le -1$
$x + 4y \ge -12$

79. $y < \frac{x}{3} + 2$
$y < -2x + 1$

80. $x + 3y < 3$
$x - 2y \ge 4$

Example 2

Solve each system of inequalities.

81. $x > -3$
$y < -\frac{1}{3}x + 2$ see graph

82. $x \ge -2$
$y \ge x - 2$

83. **PERSEVERE** Find the area of the region defined by the following inequalities.
$y \ge -4x - 16$
$4y \le 26 - x$
$3y + 6x \le 30$
$4y - 2x \ge -10$
see graph

2.7 Optimization with Linear Programming · Form C

Example 1

Graph the system of inequalities. Name the coordinates of the vertices of the feasible region. Find the maximum and minimum Values of the function for this region. see graphs

84. $y \ge -2$
$y \ge 2x - 4$
$x - 2y \ge -1$
$f(x, y) = 4x - y$

85. $x \ge 2$
$x \le 5$
$y \ge 1$
$y \le 4$
$f(x, y) = x + y$

86. $x \ge 0$
$y \ge 0$
$y \le 7 - x$
$f(x, y) = 3x + y$

Example 2

Graph the system of inequalities. Name the coordinates of the vertices of the feasible region. Find the maximum and minimum values of the function for this region.

87. $y \le 2x$
$y \ge 6 - x$
$y \le 6$
$f(x, y) = 4x + 3y$
see graph

3.1 Graphing Quadratic Functions · Form C

Mixed Exercises

Complete parts a–c for each quadratic function. see graphs

a. Find the *y*-intercept, the equation of the axis of symmetry, and the *x*-coordinate of the vertex.
b. Make a table of values that includes the vertex.
c. Use this information to graph the function.

88. $f(x) = 2x^2 - 6x - 9$

89. $f(x) = -3x^2 - 9x + 2$

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

NAME _____ DATE _____ PERIOD _____

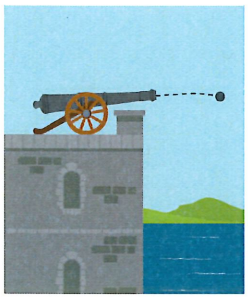
Determine whether each function has a maximum or a minimum value. Then find and use the *x*-coordinate of the vertex to determine the maximum or minimum.

91. $f(x) = -9x^2 - 12x + 19$ max $(-2/3, 23)$

92. $f(x) = 7x^2 - 21x + 8$ min $(1.5, -7.75)$

93. $f(x) = -5x^2 + 14x - 6$ max $(1.4, 3.8)$

94. $f(x) = 2x^2 - 13x - 9$ min $(3.25, -30.125)$



95. TRAJECTORIES At a special ceremonial reenactment, a cannonball is launched from a cannon on the wall of Fort Chambly, Quebec. If the path of the cannonball is traced on a graph so that the cannon is situated on the *y*-axis, the equation that describes the path is $y = -\frac{1}{1600}x^2 + \frac{1}{2}x + 20$, where x is the horizontal distance from the cliff and y is the vertical distance above the ground in feet. How high above the ground is the cannon? 20 feet.

3.2 Solving Quadratic Equations by Graphing · Form C

Mixed Exercises

Solve each equation by graphing. If the exact roots cannot be found, state the consecutive integers between which the roots are located.

96. $4x^2 - 15 = -4x$ see graphs

97. $-3x^2 + 11x + 9 = 1$

98. $-0.5x^2 + 18 = -6x + 33$

Use a graph or table to solve each equation. If exact roots cannot be found, state the consecutive integers between which the roots are located.

99. $-2x^2 - 4x - 5 = 0$ see graphs

100. $-0.5x^2 + x + 6 = 0$

REGULARITY Use a quadratic equation to find two real numbers that satisfy each situation, or show that no such numbers exist.

101. Their sum is 12, and their product is –85. $X = -5$, $Y = 17$

3.3 Complex Numbers · Form C

Mixed Exercises

STRUCTURE Simplify.

102. $(1 + i)(2 + 3i)(4 - 3i)$ $11 + 23i$

103. $\frac{4 - i\sqrt{2}}{4 + i\sqrt{2}}$ $\frac{7 - 4i\sqrt{2}}{9}$

104. ~~$\frac{2 - i\sqrt{3}}{2 + i\sqrt{3}}$~~

ELECTRICITY Use the formula $V = CI$, where V is the voltage, C is the current, and I is the impedance.

105. The current in a circuit is $2 + 4j$ amps, and the impedance is $3 - j$ ohms. What is the voltage? $10 + 10j$

3.4 Solve Quadratic Equations by Factoring · Form C

Mixed Exercises

STRUCTURE Solve each equation by factoring. Check your solution.

106. $10x^2 + 25x = 15$ $x = 1/2$ $x = -3$

107. $27x^2 + 5 = 48x$ $x = 1/9$ $x = 5/3$

108. $x^2 + 81 = 0$ $x \neq 9$ $x = -9$

109. $45x^2 - 3x = 2x$ $x = 0$ $x = 1/9$

110. $80x^2 = -16$ $x = \pm\sqrt{.2}$

111. $16x^2 + 8x = -1$ $x = -1/4$ $x = 1/4$

112. Find two consecutive odd positive integers whose product is 323.

3.5 Solving Quadratic Equations by Completing the Square · Form C

Mixed Exercises

PRECISION Solve each equation. Round to the nearest hundredth, if necessary.

113. $9x^2 + 30x + 25 = 11$ $x = -.56, -2.77$

114. $x^2 + 1.2x + 0.56 = 0.91$ $x = .24$ $x = -1.44$

115. ~~$x^2 - 3.2x = -3.46$~~

116. ~~$-0.3x^2 - 0.78x - 5.514 = 0$~~

Write each function in vertex form. Then find the vertex.

117. $y = x^2 - 10x + 28$

118. $y = x^2 - 20x + 104$

NAME _____ DATE _____ PERIOD _____

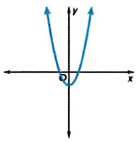
119. **WRITE** Explain what is means to complete the square. Describe each step.

3.6 Using the Quadratic Formula and the Discriminant · Form C

Mixed Exercises

REGULARITY **Describe the discriminant of the related equation used for each graph. Then determine the type and number of roots.**

120.



Use the discriminant to describe the number and type of roots for each equation. Then solve each equation by using the Quadratic Formula.

121. $4x^2 - 4x + 17 = 0$

$d = (-4)^2 - 4(4)(17)$

$x = \frac{4 \pm \sqrt{-256}}{8} = \frac{4 \pm 16i}{8} = \frac{1}{2} \pm 2i$

122. $x^2 - 11x + 24 = 0$

$d = (-11)^2 - 4(1)(24)$

$x = \frac{11 \pm \sqrt{25}}{2} = \frac{11 \pm 5}{2} = 8, 3$

123. $3x^2 - 16x + 16 = 0$

$d = (-16)^2 - 4(3)(16)$

$x = \frac{16 \pm \sqrt{64}}{6} = \frac{16 \pm 8}{6} = 4, \frac{4}{3}$

124. $2x^2 + 10x + 11 = 0$

$d = (10)^2 - 4(2)(11)$

$x = \frac{-10 \pm \sqrt{12}}{4} = \frac{-10 \pm 2\sqrt{3}}{4} = \frac{-5 \pm \sqrt{3}}{2}$

125. **SPORTS** Natalya Lisovskaya set the women's shot put world record of 22.63 meters. Her throw can be modeled by $h = -4.9t^2 + 13.7t + 1.6$, where t is time in seconds and h is the height in meters. About how long was the shot in the air?

3.7 Quadratic Inequalities · Form C

Mixed Exercises

Solve each quadratic inequality by using a graph. see graph

126. $-2x^2 + 12x < -15$

127. $11 \leq 4x^2 + 7x$

128. $-3x^2 + 10x < 5$

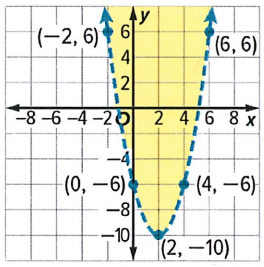
129. $x^2 + 2x + 1 > 0$

130. $x^2 + 10x + 7 \geq 0$

131. $-x^2 - 15 \leq 8x$

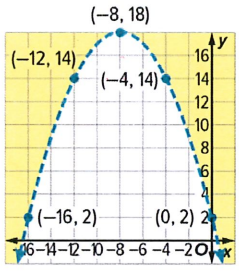
Write a quadratic inequality for each graph.

132.



$y = 2(x-2)^2 - 10$

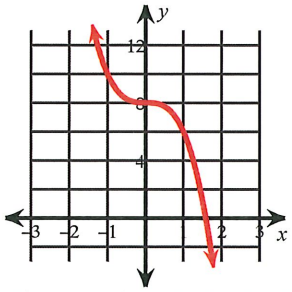
133.



$y = -(x+8)^2 + 18$

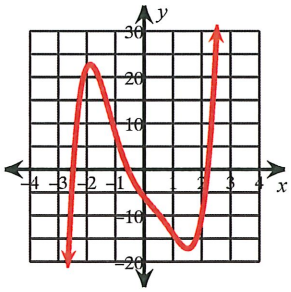
Semester 1 Review Graphs

23)



no max
no min

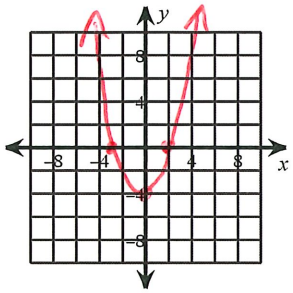
24)



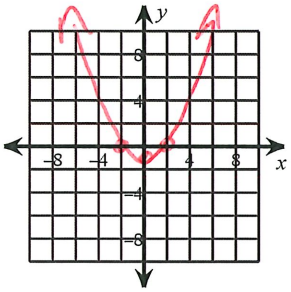
max (−2, 23)
min (1.5, −18)

25) NO GRAPH NEEDED

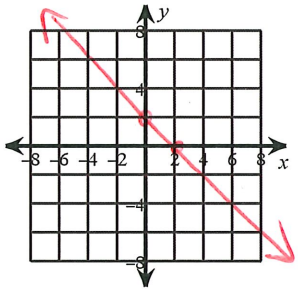
26)



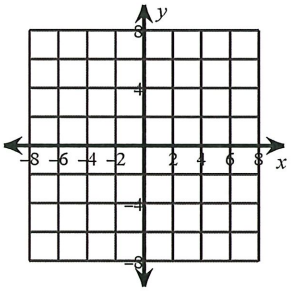
27)



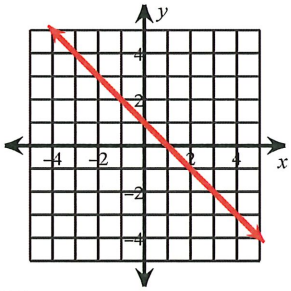
28)



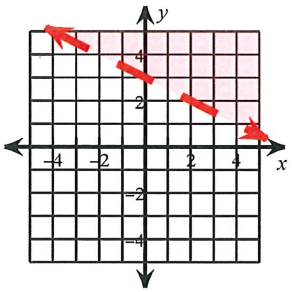
29)



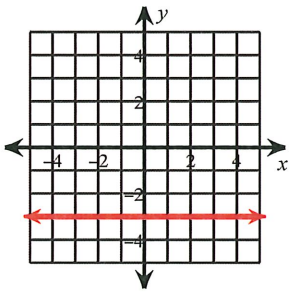
30)



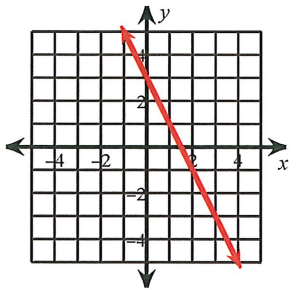
31)



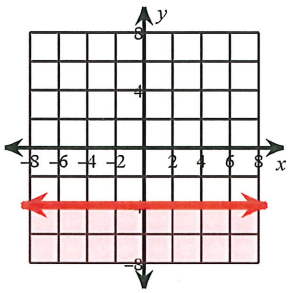
32)



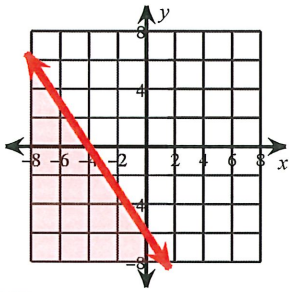
33)



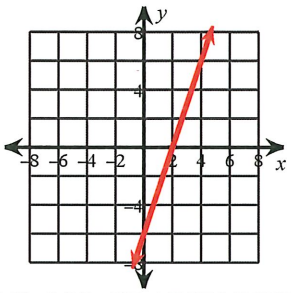
34)



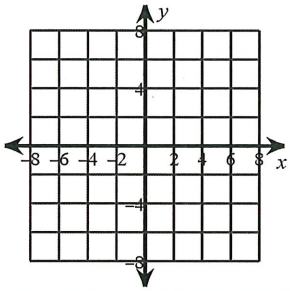
35)



36)



37)



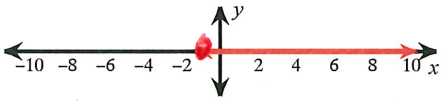
38) NO GRAPH NEEDED

39) NO GRAPH NEEDED

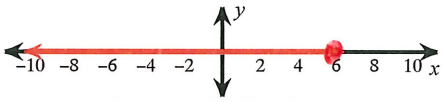
40) NO GRAPH NEEDED

41) NO GRAPH NEEDED

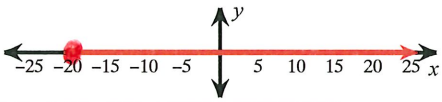
42)



43)



44)



45) NO GRAPH NEEDED

46) NO GRAPH NEEDED

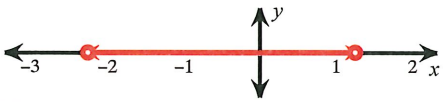
47) NO GRAPH NEEDED

48) NO GRAPH NEEDED

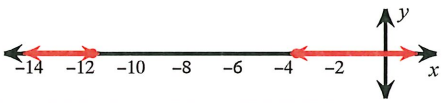
49) NO GRAPH NEEDED

50) NO GRAPH NEEDED

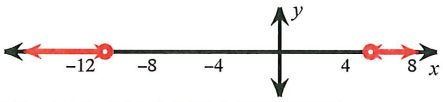
51)



52)



53)



54) NO GRAPH NEEDED

55) NO GRAPH NEEDED

56) NO GRAPH NEEDED

57) NO GRAPH NEEDED

58) NO GRAPH NEEDED

59) NO GRAPH NEEDED

60) NO GRAPH NEEDED

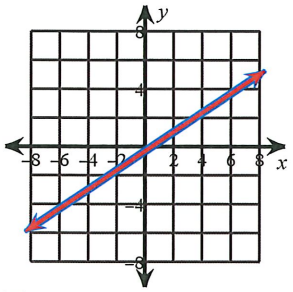
61) NO GRAPH NEEDED

62) NO GRAPH NEEDED

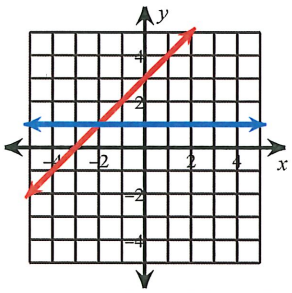
63) NO GRAPH NEEDED

64) NO GRAPH NEEDED

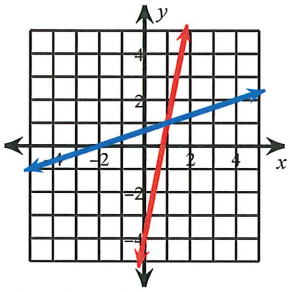
65)



66)

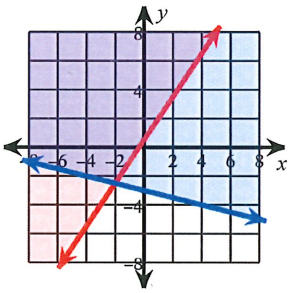


67)

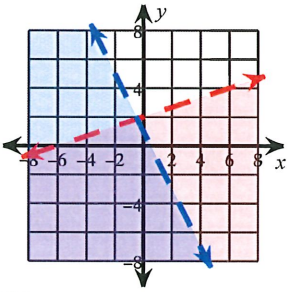


68) NO GRAPH NEEDED

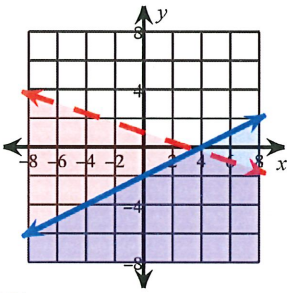
69) NO GRAPH NEEDED
70) NO GRAPH NEEDED
71) NO GRAPH NEEDED
72) NO GRAPH NEEDED
73) NO GRAPH NEEDED
74) NO GRAPH NEEDED
75) NO GRAPH NEEDED
76) NO GRAPH NEEDED
77) NO GRAPH NEEDED
78)



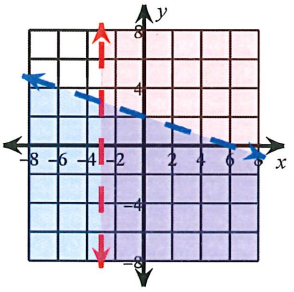
79)



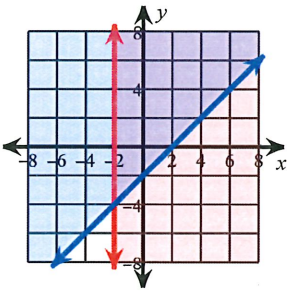
80)



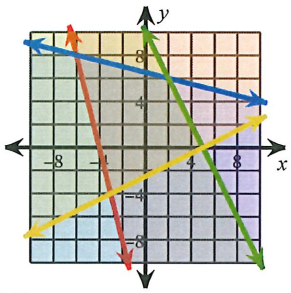
81)



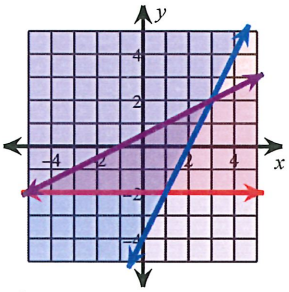
82)



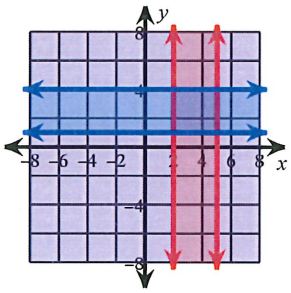
83)



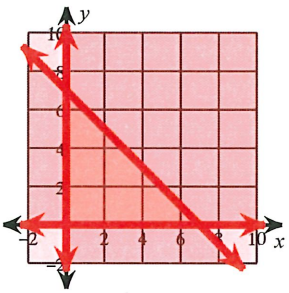
84)



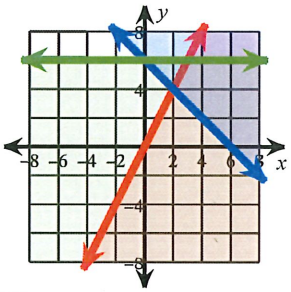
85)



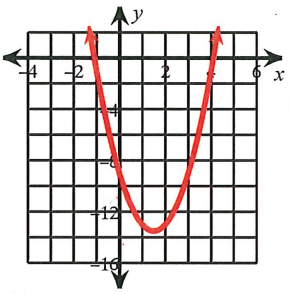
86)



87)



88)

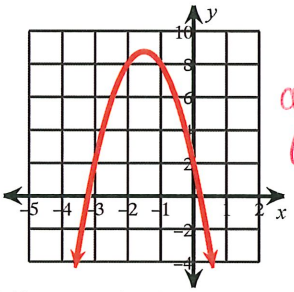


(0, -9)

a. 0.5 : x = 1.5

(1.5, -13)

89)

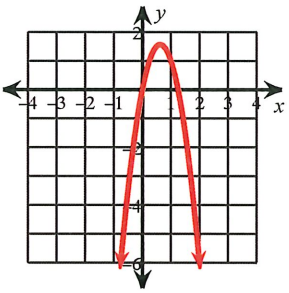


(0, 2)

a. 0.5 x = -1.5

(-1.5, 9)

90)



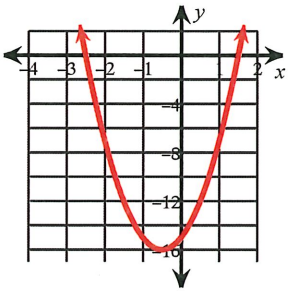
(0, 0)

a. 0.5 x = .5

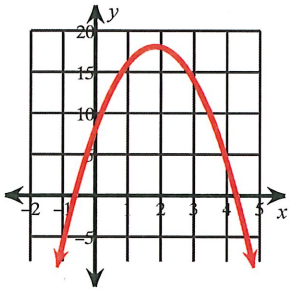
(0.5, 1.5)

91) NO GRAPH NEEDED
93) NO GRAPH NEEDED
95) NO GRAPH NEEDED

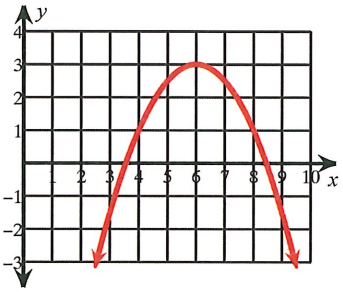
92) NO GRAPH NEEDED
94) NO GRAPH NEEDED
96)



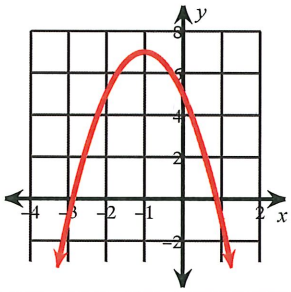
97)



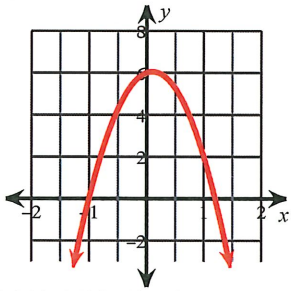
98)



99)



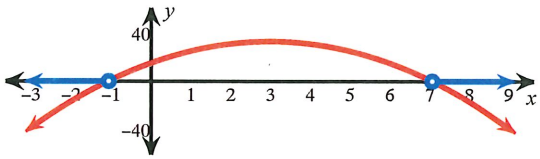
100)



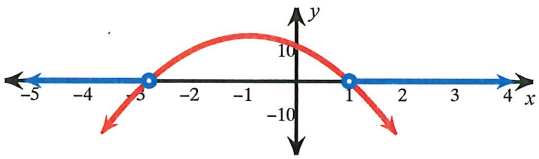
101) NO GRAPH NEEDED
103) NO GRAPH NEEDED
105) NO GRAPH NEEDED
107) NO GRAPH NEEDED
109) NO GRAPH NEEDED
111) NO GRAPH NEEDED
113) NO GRAPH NEEDED
115) NO GRAPH NEEDED
117) NO GRAPH NEEDED
119) NO GRAPH NEEDED
121) NO GRAPH NEEDED
123) NO GRAPH NEEDED
125) NO GRAPH NEEDED

102) NO GRAPH NEEDED
104) NO GRAPH NEEDED
106) NO GRAPH NEEDED
108) NO GRAPH NEEDED
110) NO GRAPH NEEDED
112) NO GRAPH NEEDED
114) NO GRAPH NEEDED
116) NO GRAPH NEEDED
118) NO GRAPH NEEDED
120) NO GRAPH NEEDED
122) NO GRAPH NEEDED
124) NO GRAPH NEEDED

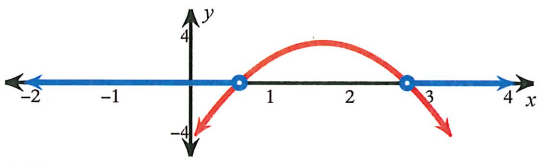
126)



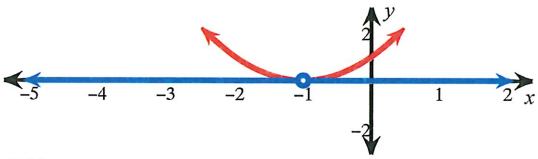
127)



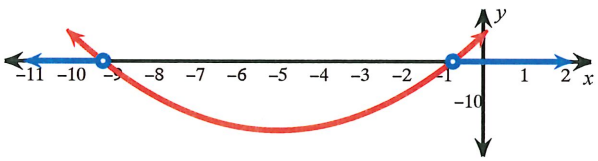
128)



129)



130)



131)