Algebra 2 / Trig Name_____

1st Quarter Exam Review

Date_____ Period____

Solve each equation.

1) $-2 + |4x - 4| = 34$

A) $\{10, -8\}$ B) $\left\{-5, \frac{11}{2}\right\}$

C) $\{9, -6\}$ D) $\{9\}$

2) $|5x + 10| - 3 = 37$

A) $\left\{\frac{4}{9}, -\frac{2}{3}\right\}$ B) $\{2\}$

C) $\{6, -10\}$ D) $\left\{2, -\frac{30}{7}\right\}$

Simplify each expression.

3) $-9p + 3(6p - 5)$

A) $9p - 21$ B) $9p - 24$

C) $-5 + 9p$ D) $9p - 15$

4) $-x - 5(x + 10)$

A) $3x - 51$ B) $16x - 30$

C) $-6x - 50$ D) $3x - 50$

Find the absolute value of each complex number.

5) $|4 - 3i|$

A) $4\sqrt{2}$ B) 3

C) $\sqrt{41}$ D) 5

Solve each equation by completing the square.

6) $p^2 + 4p - 50 = 10$

A) $\{7 + 2\sqrt{19}, 7 - 2\sqrt{19}\}$

B) $\{6, -10\}$

C) $\{11, 3\}$

D) $\{-4, -10\}$

7) $7m^2 + 14m - 25 = -4$

A) $\{1, -3\}$

B) $\{8 + \sqrt{134}, 8 - \sqrt{134}\}$

C) $\left\{\frac{2 + \sqrt{39}}{2}, \frac{2 - \sqrt{39}}{2}\right\}$

D) $\{-7 + \sqrt{70}, -7 - \sqrt{70}\}$

Simplify.

8) $\frac{6}{3 - 5i}$

A) $\frac{36 + 30i}{61}$ B) $\frac{27 + 45i}{34}$

C) $\frac{9 + 15i}{17}$ D) $\frac{6i}{5}$

9) $\frac{-2 + 7i}{3 - 4i}$

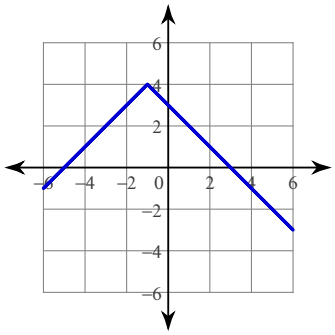
A) $\frac{-2i - 7}{4}$ B) $\frac{-34 + 13i}{25}$

C) $\frac{5 + 20i}{17}$ D) $\frac{-9 + 5i}{8}$

Graph each equation.

10) $y = -\left|x - 4\right| + 1$

A)



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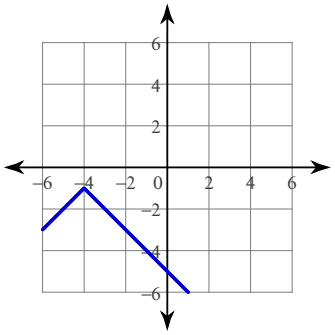

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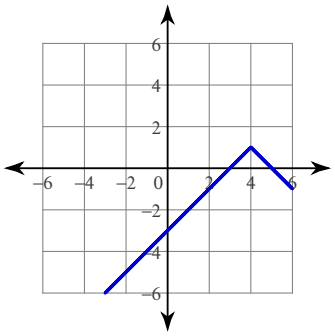

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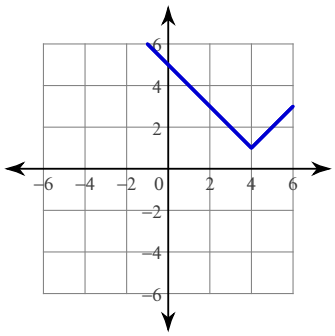
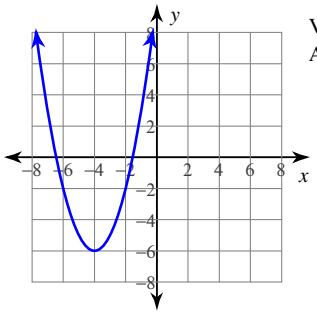


Identify the vertex and axis of symmetry of each.

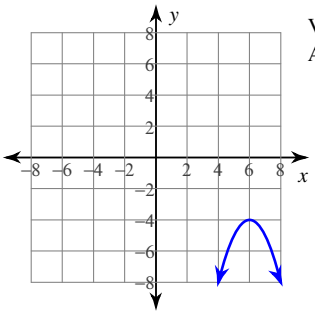
11) $y = (x + 4)^2 - 6$

A)



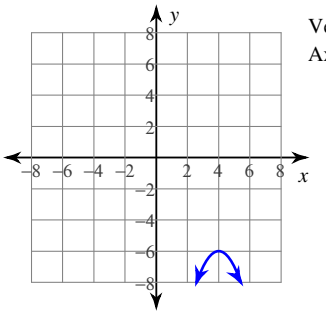
Vertex: $(-4, -6)$
Axis of Sym.: $x = -4$

B)



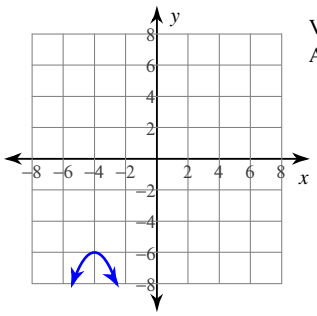
Vertex: $(6, -4)$
Axis of Sym.: $x = 6$

C)



Vertex: $(4, -6)$
Axis of Sym.: $x = 4$

D)



Vertex: $(-4, -6)$
Axis of Sym.: $x = -4$

Sketch the graph of each line.

12) $4x + y = -3$

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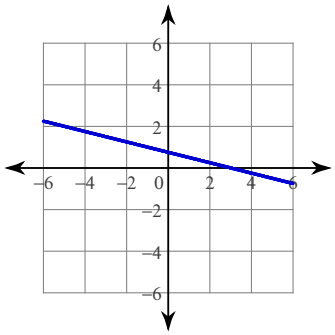

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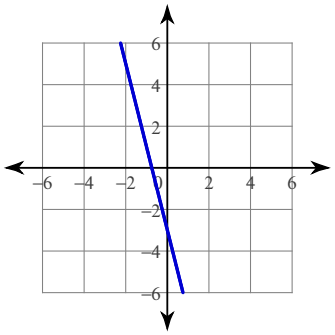
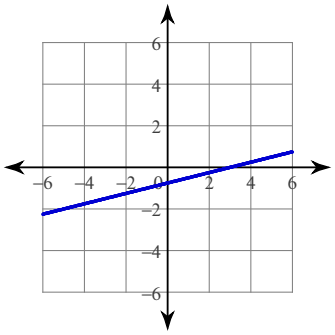
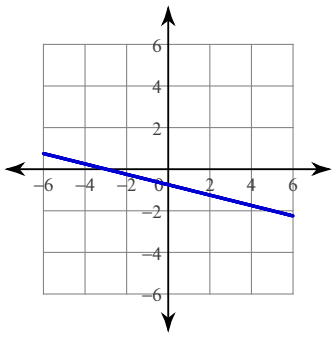


C)



D)



Find the discriminant of each quadratic equation then state the number and type of solutions.

13) $4p^2 + 4p + 8 = 7$

A) 32; two real solutions
B) 0; one real solution
C) −8; two imaginary solutions
D) −63; two real solutions

Solve each equation.

14) $42 = 7(-3 + 3x)$

A) $\{-14\}$ B) $\{3\}$
C) $\{7\}$ D) $\{-13\}$

Solve each equation by factoring.

15) $x^2 = -21 + 10x$

A) $\{7, 3\}$ B) $\{8, 3\}$
C) $\{3, 1\}$ D) $\{-4, 3\}$

Solve each equation by taking square roots.

16) $6k^2 + 8 = -16$

A) $\left\{\frac{2i\sqrt{3}}{3}\right\}$
B) $\left\{\frac{2i\sqrt{3}}{3}, -\frac{2i\sqrt{3}}{3}\right\}$
C) $\{2i, -2i\}$
D) $\left\{-\frac{4}{3}, \frac{4}{3}\right\}$

Solve each equation with the quadratic formula.

17) $10v^2 = 6 + 5v$

A) $\left\{4, -\frac{5}{3}\right\}$
B) $\{6, -1\}$
C) $\left\{\frac{5 + \sqrt{265}}{20}, \frac{5 - \sqrt{265}}{20}\right\}$
D) $\left\{\frac{5}{3}, -4\right\}$

Factor each completely.

18) $25p^2 + 10p + 1$

A) $(25p + 1)^2$
B) $(2p + 1)(2p - 1)$
C) $(5p + 1)^2$
D) Not factorable

19) $x^2 - 9$

A) $(x + 3)(x - 3)$
B) $(2x + 1)(2x - 1)$
C) $(4x + 3)(4x - 3)$
D) $(x + 9)^2$

Simplify.

20) $(-2i)(3i)$

A) -6 B) $-4i$
C) 6 D) $-6i$

21) $(3i)(3 - 8i)$

A) $24 + 9i$ B) $3 - 8i$
C) $24 - 9i$ D) $-21i$

Solve each system by elimination.

22) $2a + 6b + c = -2$
$-4a + 4b - c = 24$
$-3a + 2b + c = 24$

A) $(-3, 4, -1)$ B) $(-6, 1, 4)$
C) $(0, -3, -5)$ D) $(3, 3, 1)$

Solve each system by graphing.

23) $5x - 3y = 6$
$x - 3y = -6$

A) $(3, 3)$ B) $(3, -3)$
C) $(-3, 3)$ D) $(-3, -3)$

24) $3x - 4y = 8$
$x + 2y = 6$

A) $(-4, -1)$ B) $(4, -1)$
C) $(4, -4)$ D) $(4, 1)$

Write the slope-intercept form of the equation of the line described.

25) through: $(1, -1)$, parallel to $y = 4x - 5$

A) $y = x + 4$ B) $y = 4x - 5$
C) $y = -5x + 4$ D) $y = 5x + 4$

Write the standard form of the equation of the line through the given point with the given slope.

26) through: $(4, 2)$, slope $= -\frac{3}{4}$

A) $3x + 4y = -16$
B) $20x - 3y = 4$
C) $20x + 6y = 3$
D) $3x + 4y = 20$

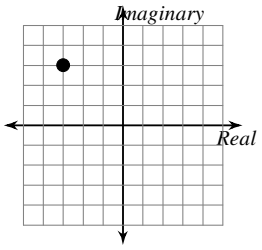
27) Willie's school is selling tickets to a choral performance. On the first day of ticket sales the school sold 14 adult tickets and 6 student tickets for a total of $196. The school took in $109 on the second day by selling 8 adult tickets and 3 student tickets. Find the price of an adult ticket and the price of a student ticket.

A) adult ticket: $6, student ticket: $9
B) adult ticket: $13, student ticket: $4
C) adult ticket: $11, student ticket: $7
D) adult ticket: $13, student ticket: $3

Graph each number in the complex plane.

28) $3 + 4i$

A)



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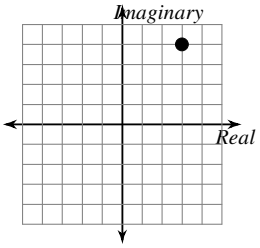

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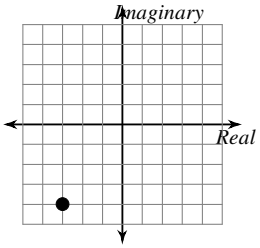

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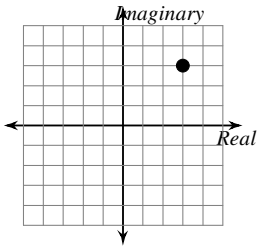
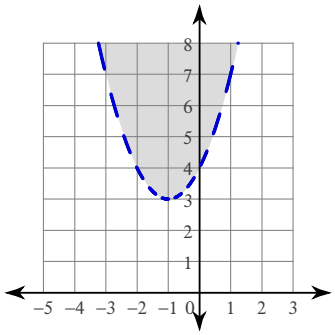


Sketch the graph of each function.

29) $y \geq -x^2 + 8x - 12$

A)



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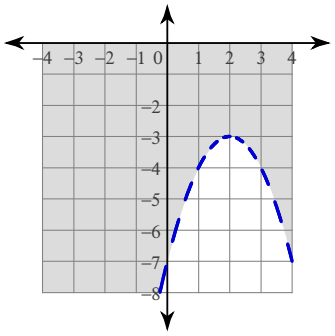

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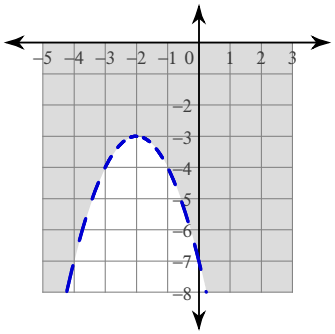

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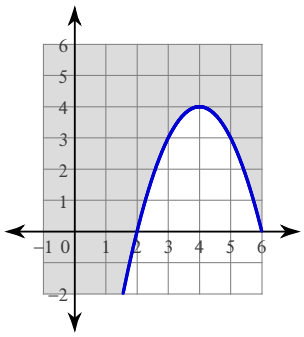
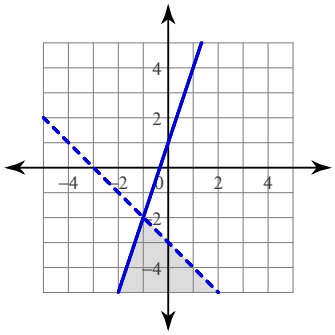


Sketch the solution to each system of inequalities.

30) $y > -\frac{1}{3}x - 1$

$x < 3$

A)



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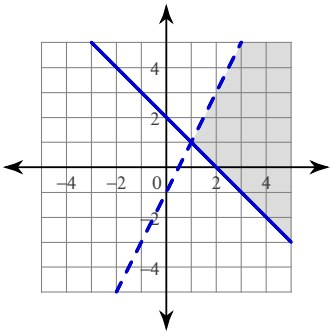

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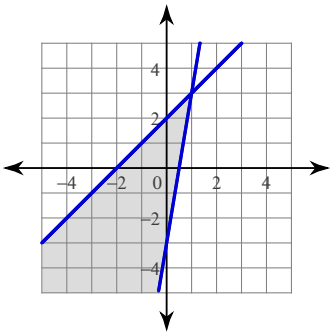

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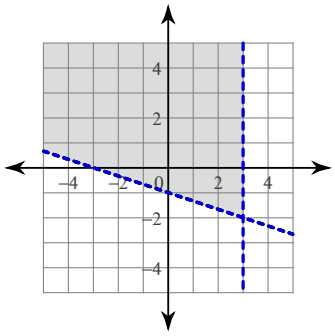

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10) $y = -\left|x - 4\right| + 1$

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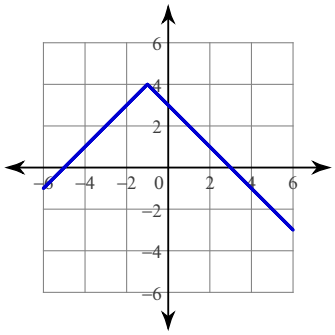

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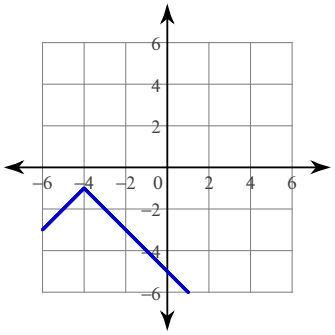

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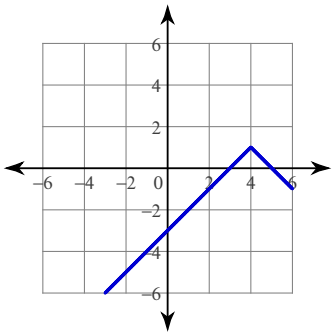

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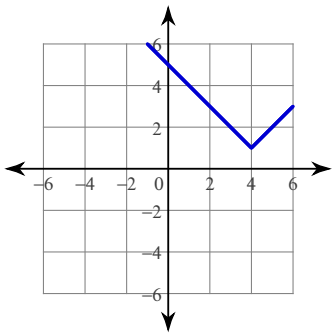

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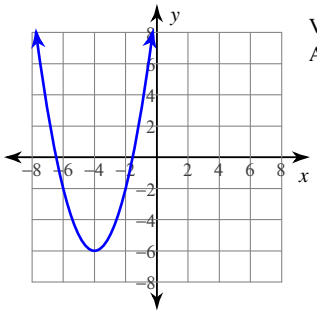
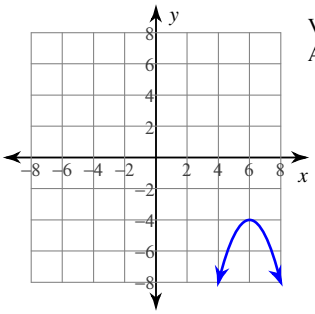


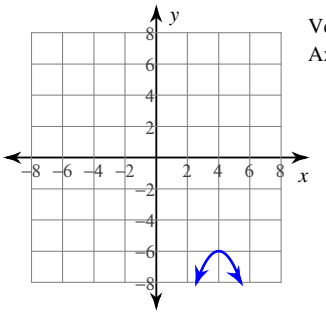
Vertex: $(-4, -6)$
Axis of Sym.: $x = -4$

B)



Vertex: $(6, -4)$
Axis of Sym.: $x = 6$

C)



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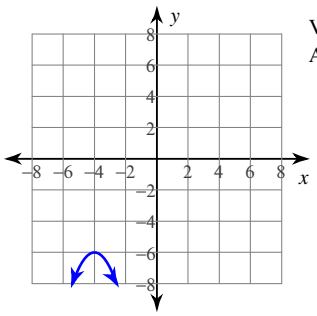

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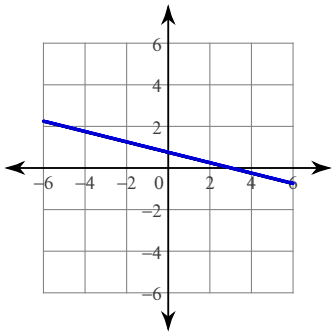

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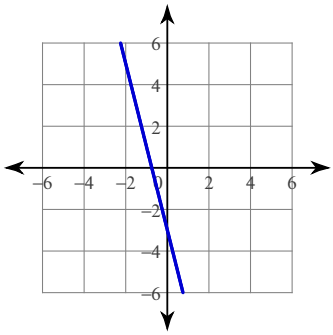

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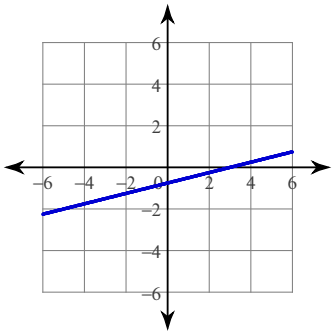

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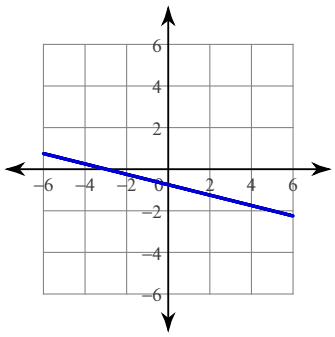

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D) Not factorable

19) $x^2 - 9$

*A) $(x + 3)(x - 3)$
B) $(2x + 1)(2x - 1)$
C) $(4x + 3)(4x - 3)$
D) $(x + 9)^2$

Simplify.

20) $(-2i)(3i)$

A) -6 B) $-4i$
*C) 6 D) $-6i$

21) $(3i)(3 - 8i)$

*A) $24 + 9i$ B) $3 - 8i$
C) $24 - 9i$ D) $-21i$

Solve each system by elimination.

22) $2a + 6b + c = -2$
$-4a + 4b - c = 24$
$-3a + 2b + c = 24$

A) $(-3, 4, -1)$ *B) $(-6, 1, 4)$
C) $(0, -3, -5)$ D) $(3, 3, 1)$

Solve each system by graphing.

23) $5x - 3y = 6$
$x - 3y = -6$

*A) $(3, 3)$ B) $(3, -3)$
C) $(-3, 3)$ D) $(-3, -3)$

24) $3x - 4y = 8$
$x + 2y = 6$

A) $(-4, -1)$ B) $(4, -1)$
C) $(4, -4)$ *D) $(4, 1)$

Write the slope-intercept form of the equation of the line described.

25) through: $(1, -1)$, parallel to $y = 4x - 5$

A) $y = x + 4$ *B) $y = 4x - 5$
C) $y = -5x + 4$ D) $y = 5x + 4$

Write the standard form of the equation of the line through the given point with the given slope.

26) through: $(4, 2)$, slope $= -\frac{3}{4}$

A) $3x + 4y = -16$
B) $20x - 3y = 4$
C) $20x + 6y = 3$
*D) $3x + 4y = 20$

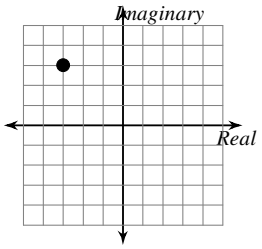
27) Willie's school is selling tickets to a choral performance. On the first day of ticket sales the school sold 14 adult tickets and 6 student tickets for a total of $196. The school took in $109 on the second day by selling 8 adult tickets and 3 student tickets. Find the price of an adult ticket and the price of a student ticket.

A) adult ticket: $6, student ticket: $9
B) adult ticket: $13, student ticket: $4
*C) adult ticket: $11, student ticket: $7
D) adult ticket: $13, student ticket: $3

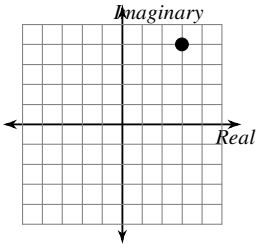
Graph each number in the complex plane.

28) $3 + 4i$

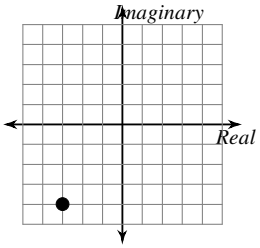
A)



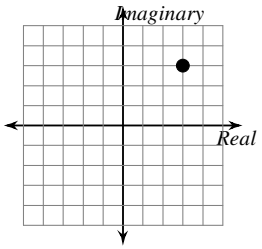
*B)



C)



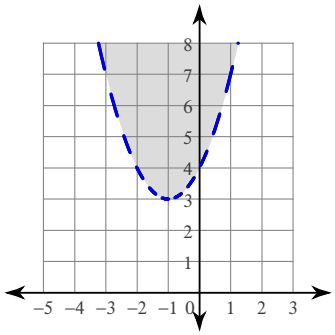
D)



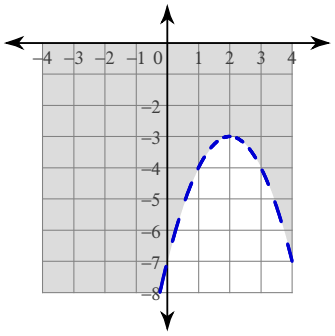
Sketch the graph of each function.

29) $y \geq -x^2 + 8x - 12$

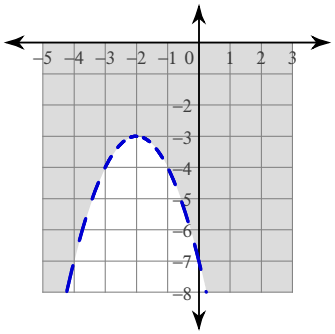
A)



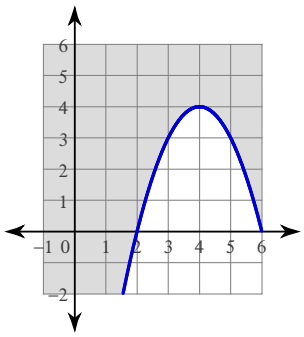
B)



C)



*D)

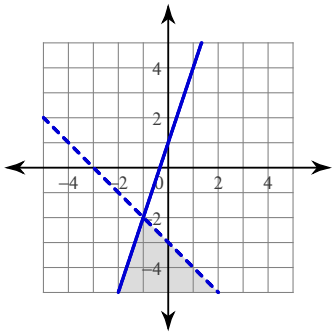


Sketch the solution to each system of inequalities.

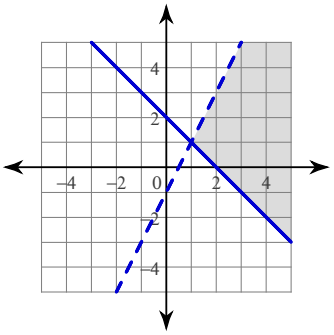
30) $y > -\frac{1}{3}x - 1$

$x < 3$

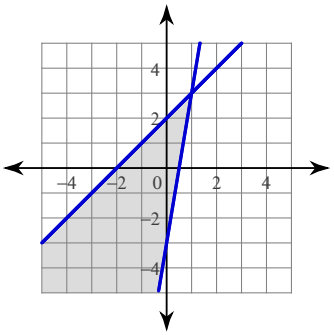
A)



B)



C)



*D)