Algebra Revision Worksheet with Answers

Solve each equation.

1) $n + 7 + 5n + 5 = 7(5n + 3) - 3(n + 3)$

2) $5(2m + 6) + 8m = -7(1 - m) + 4$

3) $-7(2r - 6) = 3(r + 4) - 2r$

4) $8(x + 1) = 7(3 + x)$

5) $6(6n - 6) - 4n = -n + 6(1 + 6n)$

6) $-4|10v - 6| = -16$

7) $|6 - 6b| - 2 = 64$

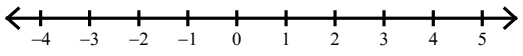
8) $6|6 - 6x| = 108$

9) $\frac{|9n - 7|}{3} = 3$

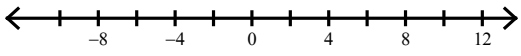
10) $|4 - 7a| + 9 = 27$

Solve each inequality and graph its solution.

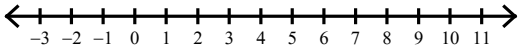
11) $6\left|\frac{k}{3}\right| < 4$



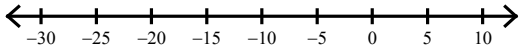
12) $-10 + \left|\frac{x}{10}\right| \leq -9$



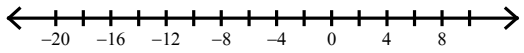
13) $|x - 4| - 6 < 0$



14) $|10 + n| - 7 < 10$



15) $|m+5|+2<16$



Solve each inequality.

16) $2x-10<-2x+2(4x+5)$

17) $3(8p+3)\geq -4p+9$

18) $7n+15\geq -4+6(n+4)$

19) $-40+8b<8(1-5b)$

20) $7+7(1-6r)>14+6r$

Solve each system by elimination.

21) $-6x-6y=-12$
$-8x-12y=12$

22) $-6x-6y=6$
$4x+3y=-1$

23) $-5x-y=-14$
$-10x-7y=2$

24) $-x-2y=-11$
$6x-10y=22$

25) $8x-2y=26$
$-4x-4y=-8$

Solve each system by substitution.

26) $-x + y = -3$
$-7x - 7y = -7$

27) $x + 5y = -17$
$3x + 3y = -3$

28) $-4x - 5y = -8$
$x + 4y = -9$

29) $4x + y = -13$
$-12x - 3y = 39$

30) $2x + y = -5$
$2x + 2y = -12$

31) The senior classes at High School A and High School B planned separate trips to the water park. The senior class at High School A rented and filled 2 vans and 4 buses with 142 students. High School B rented and filled 13 vans and 8 buses with 437 students. Every van had the same number of students in it as did the buses. Find the number of students in each van and in each bus.

32) A boat traveled 286 miles downstream and back. The trip downstream took 13 hours. The trip back took 143 hours. What is the speed of the boat in still water? What is the speed of the current?

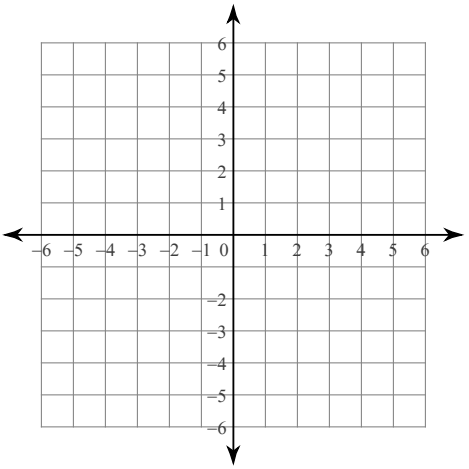
33) Joe's school is selling tickets to a fall musical. On the first day of ticket sales the school sold 1 senior citizen ticket and 14 student tickets for a total of $190. The school took in $147 on the second day by selling 7 senior citizen tickets and 7 student tickets. What is the price each of one senior citizen ticket and one student ticket?

34) The school that Jessica goes to is selling tickets to a spring musical. On the first day of ticket sales the school sold 5 adult tickets and 13 child tickets for a total of $265. The school took in $275 on the second day by selling 10 adult tickets and 9 child tickets. Find the price of an adult ticket and the price of a child ticket.

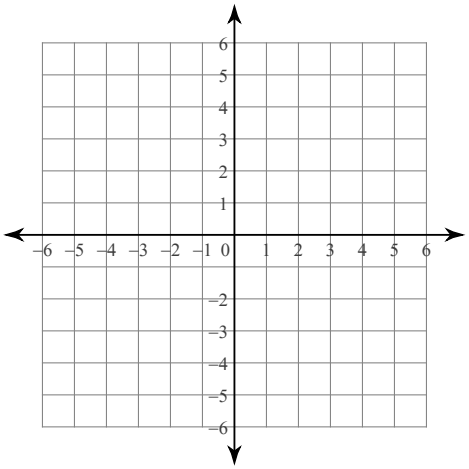
35) Emily and Maria each improved their yards by planting grass sod and ivy. They bought their supplies from the same store. Emily spent \$103 on 7 ft² of grass sod and 4 pots of ivy. Maria spent \$138 on 2 ft² of grass sod and 12 pots of ivy. Find the cost of one ft² of grass sod and the cost of one pot of ivy.

Graph each equation.

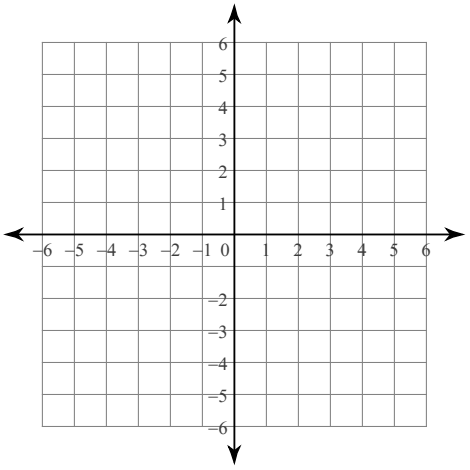
36) $y = |x - 2| - 4$



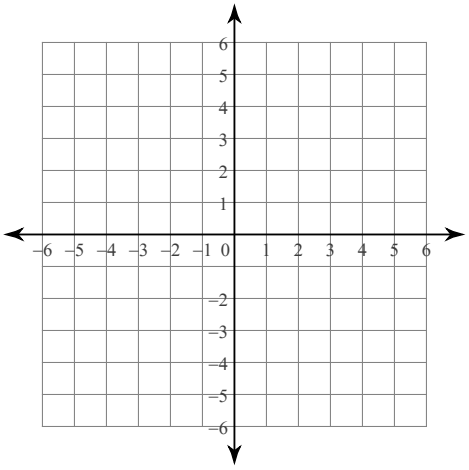
37) $y = |x - 4| - 2$



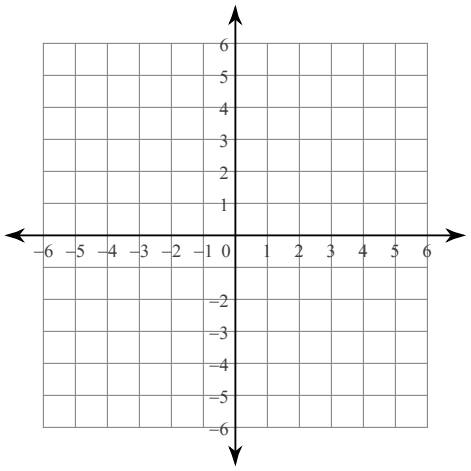
38) $y = |x - 3| + 2$



39) $y = |x - 2| + 4$

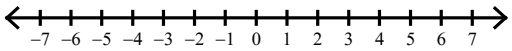


40) $y = \left|x - 2\right| - 1$

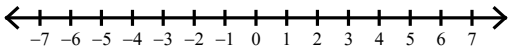


Draw a graph for each inequality.

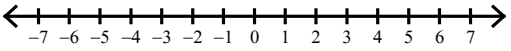
41) $5 \geq -k$



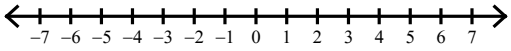
42) $-5 < -x$



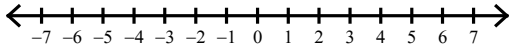
43) $b < 2$



44) $-x < -1$

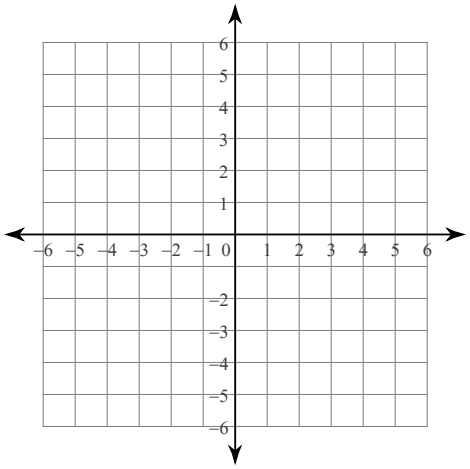


45) $5 \leq m$

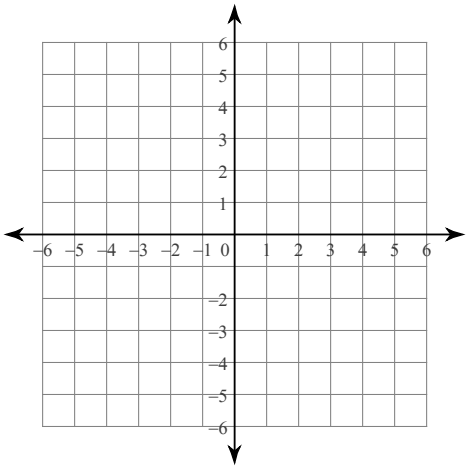


Sketch the graph of each line.

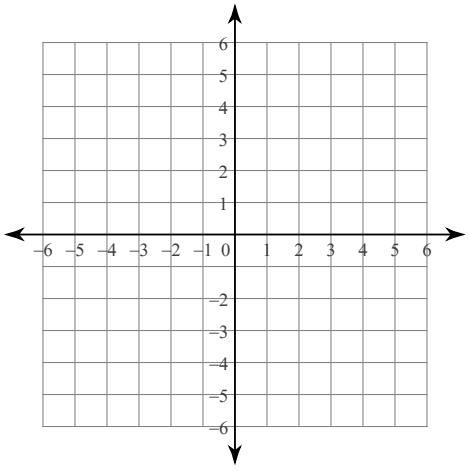
46) $y = -4$



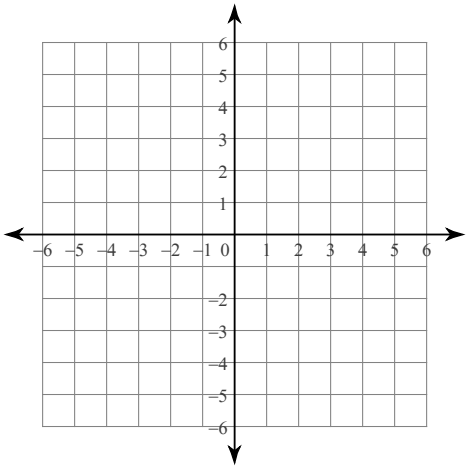
47) $6x - y = 1$



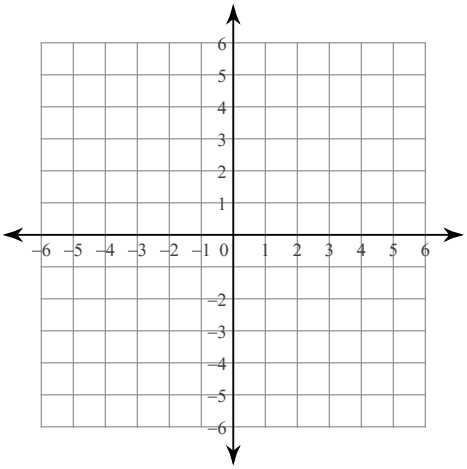
48) $6x + 5y = -10$



49) $8x + 5y = 15$

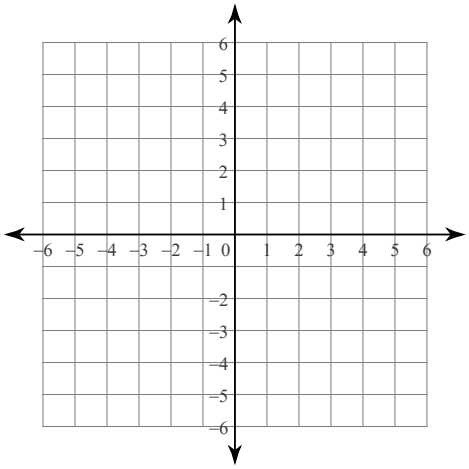


50) $4x + 3y = 3$

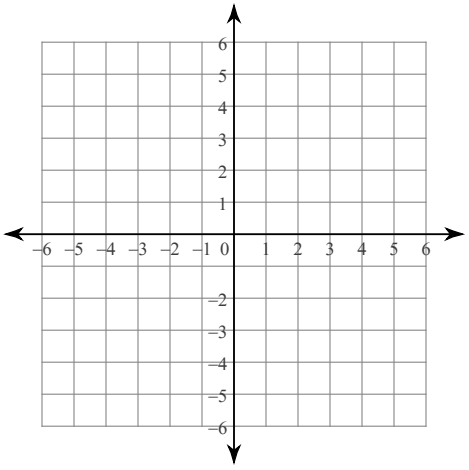


Sketch the graph of each linear inequality.

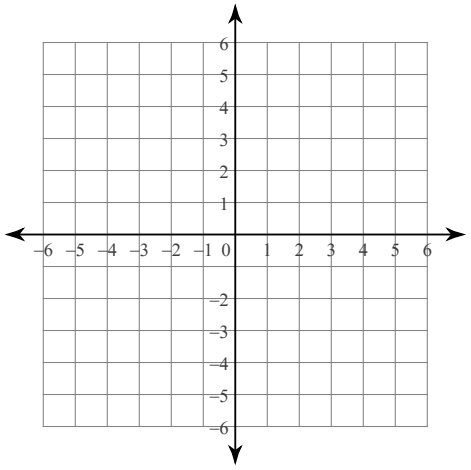
51) $y < -7x + 4$



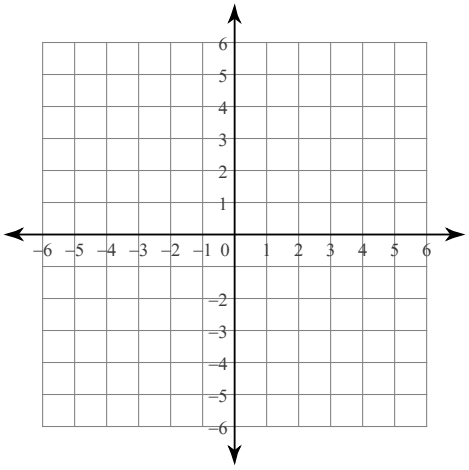
52) $y > -\frac{1}{4}x - 4$



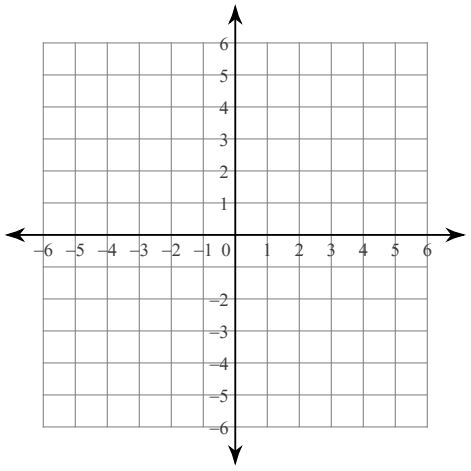
53) $y \geq \frac{1}{3}x - 3$



54) $y < \frac{1}{2}x + 1$

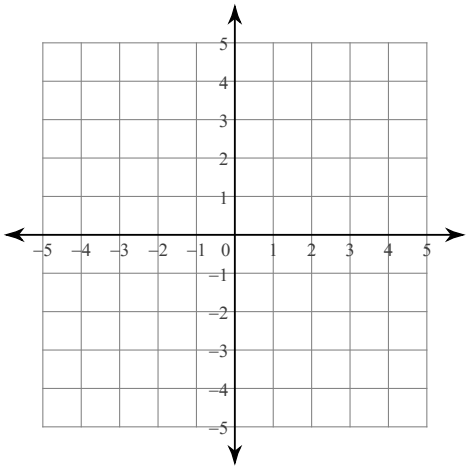


55) $y \leq \frac{3}{2}x - 1$

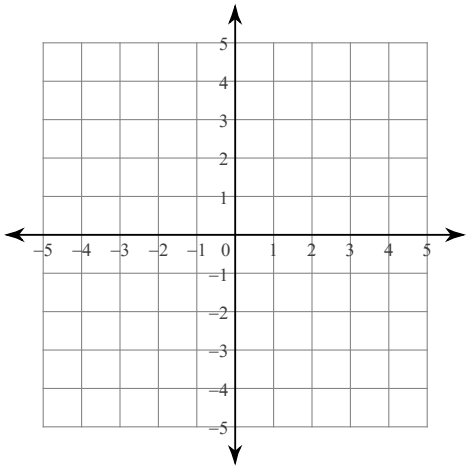


Solve each system by graphing.

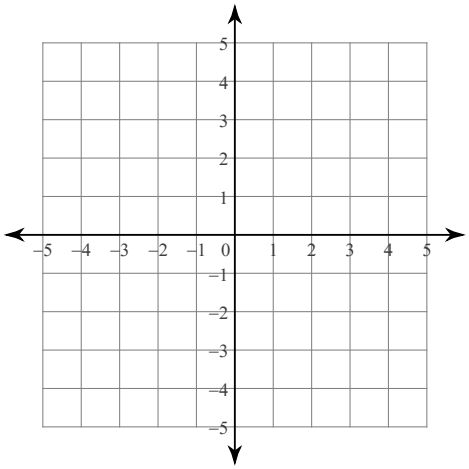
56) $4x + 3y = -6$
$2x - 3y = -12$



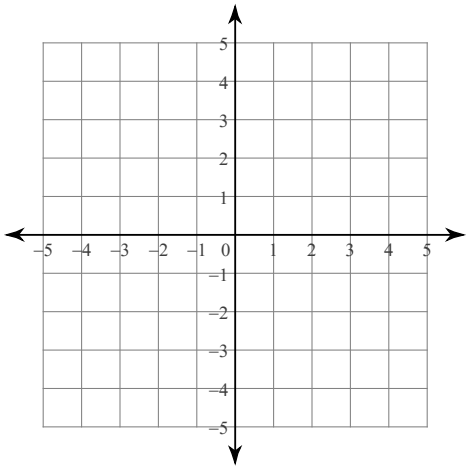
57) $4x + y = 4$
$x + y = -2$



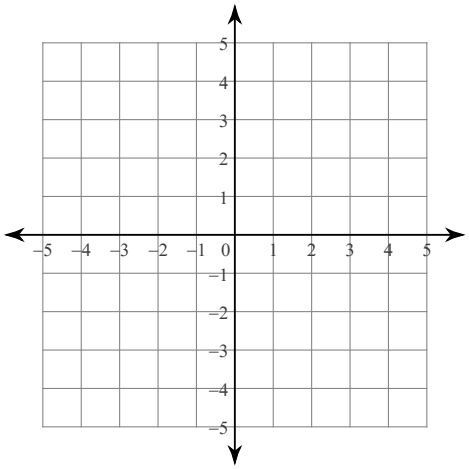
58) $5x - y = 2$
$x - y = -2$



59) $x - y = 2$
$x - y = -4$

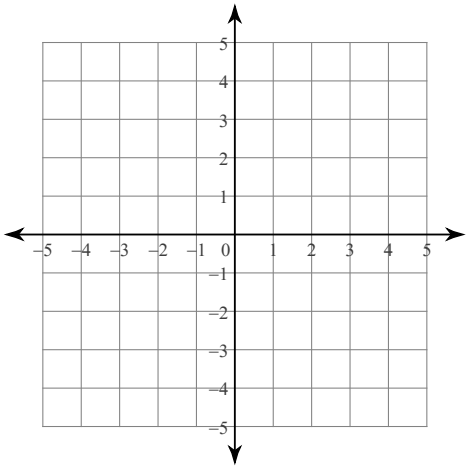


60) $2x + y = -3$
$2x + 3y = 3$

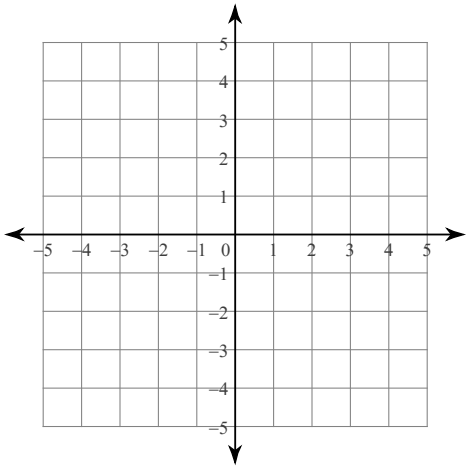


Sketch the solution to each system of inequalities.

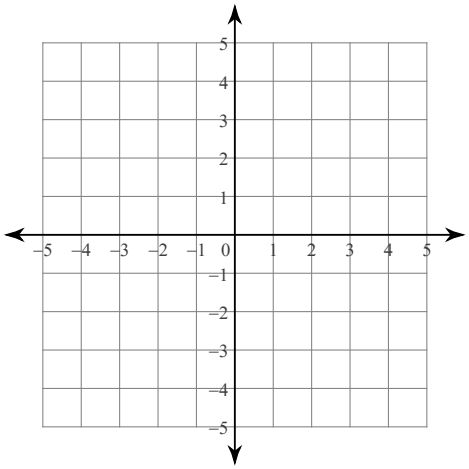
61) $x + 2y \geq 4$
$2x + y < -1$



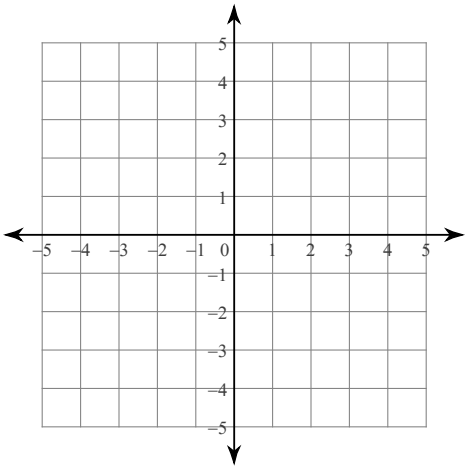
62) $x - 2y > 4$
$2x + y < 3$



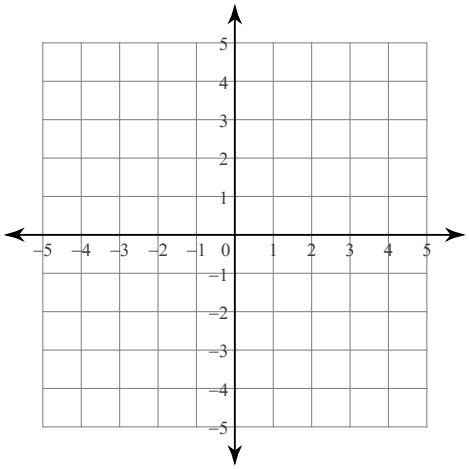
63) $x + 2y \geq 2$
$x - 2y \leq -6$



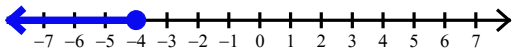
64) $5x + y \leq 3$
$x - y > 3$

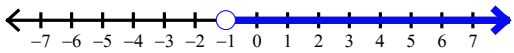


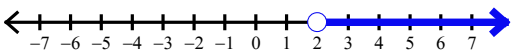
65) $x - 3y < -9$
$x + y > -1$

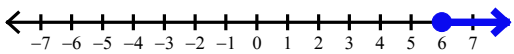


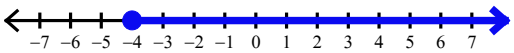
Write an inequality for each graph.

66) 

67) 

68) 

69) 

70) 

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Solve each equation.

1) $n + 7 + 5n + 5 = 7(5n + 3) - 3(n + 3)$

$\{0\}$

2) $5(2m + 6) + 8m = -7(1 - m) + 4$

$\{-3\}$

3) $-7(2r - 6) = 3(r + 4) - 2r$

$\{2\}$

4) $8(x + 1) = 7(3 + x)$

$\{13\}$

5) $6(6n - 6) - 4n = -n + 6(1 + 6n)$

$\{-14\}$

6) $-4|10v - 6| = -16$

$\left\{1, \frac{1}{5}\right\}$

7) $|6 - 6b| - 2 = 64$

$\{-10, 12\}$

8) $6|6 - 6x| = 108$

$\{-2, 4\}$

9) $\frac{|9n - 7|}{3} = 3$

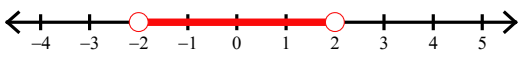
$\left\{\frac{16}{9}, -\frac{2}{9}\right\}$

10) $|4 - 7a| + 9 = 27$

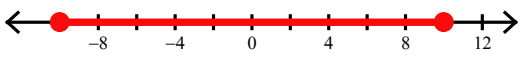
$\left\{-2, \frac{22}{7}\right\}$

Solve each inequality and graph its solution.

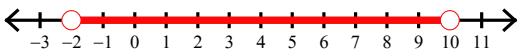
11) $6\left|\frac{k}{3}\right| < 4$



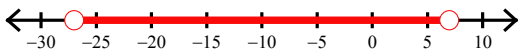
12) $-10 + \left|\frac{x}{10}\right| \leq -9$



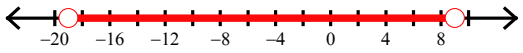
13) $|x - 4| - 6 < 0$



14) $|10 + n| - 7 < 10$



15) $|m+5|+2<16$



Solve each inequality.

16) $2x-10<-2x+2(4x+5)$

$x>-5$

17) $3(8p+3)\geq -4p+9$

$p\geq 0$

18) $7n+15\geq -4+6(n+4)$

$n\geq 5$

19) $-40+8b<8(1-5b)$

$b<1$

20) $7+7(1-6r)>14+6r$

$r<0$

Solve each system by elimination.

21) $-6x-6y=-12$
$-8x-12y=12$

$(9,-7)$

22) $-6x-6y=6$
$4x+3y=-1$

$(2,-3)$

23) $-5x-y=-14$
$-10x-7y=2$

$(4,-6)$

24) $-x-2y=-11$
$6x-10y=22$

$(7,2)$

25) $8x-2y=26$
$-4x-4y=-8$

$(3,-1)$

Solve each system by substitution.

26) $-x + y = -3$
$-7x - 7y = -7$

$(2, -1)$

27) $x + 5y = -17$
$3x + 3y = -3$

$(3, -4)$

28) $-4x - 5y = -8$
$x + 4y = -9$

$(7, -4)$

29) $4x + y = -13$
$-12x - 3y = 39$

Infinite number of solutions

30) $2x + y = -5$
$2x + 2y = -12$

$(1, -7)$

31) The senior classes at High School A and High School B planned separate trips to the water park. The senior class at High School A rented and filled 2 vans and 4 buses with 142 students. High School B rented and filled 13 vans and 8 buses with 437 students. Every van had the same number of students in it as did the buses. Find the number of students in each van and in each bus.

Van: 17, Bus: 27

32) A boat traveled 286 miles downstream and back. The trip downstream took 13 hours. The trip back took 143 hours. What is the speed of the boat in still water? What is the speed of the current?

boat: 12 mph, current: 10 mph

33) Joe's school is selling tickets to a fall musical. On the first day of ticket sales the school sold 1 senior citizen ticket and 14 student tickets for a total of $190. The school took in $147 on the second day by selling 7 senior citizen tickets and 7 student tickets. What is the price each of one senior citizen ticket and one student ticket?

senior citizen ticket: $8, student ticket: $13

34) The school that Jessica goes to is selling tickets to a spring musical. On the first day of ticket sales the school sold 5 adult tickets and 13 child tickets for a total of $265. The school took in $275 on the second day by selling 10 adult tickets and 9 child tickets. Find the price of an adult ticket and the price of a child ticket.

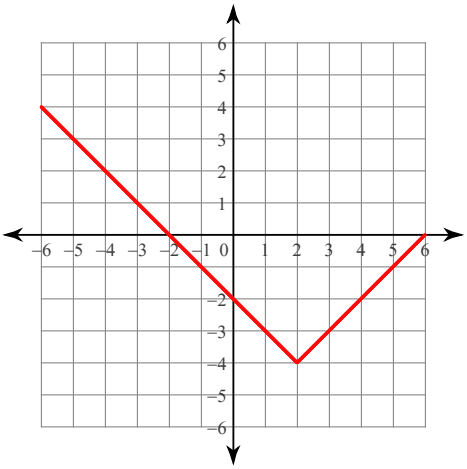
adult ticket: $14, child ticket: $15

35) Emily and Maria each improved their yards by planting grass sod and ivy. They bought their supplies from the same store. Emily spent \$103 on 7 ft² of grass sod and 4 pots of ivy. Maria spent \$138 on 2 ft² of grass sod and 12 pots of ivy. Find the cost of one ft² of grass sod and the cost of one pot of ivy.

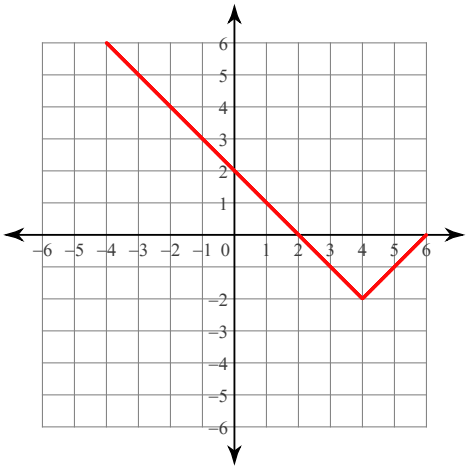
ft² of grass sod: \$9, pot of ivy: \$10

Graph each equation.

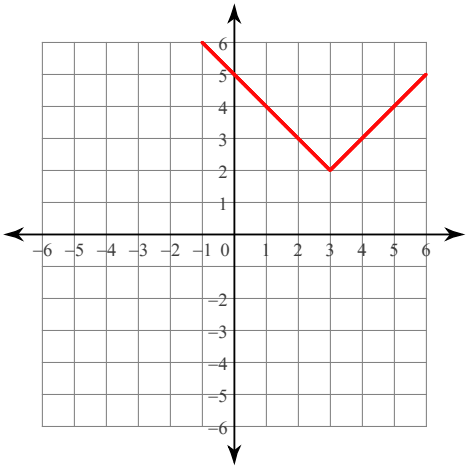
36) $y = |x - 2| - 4$



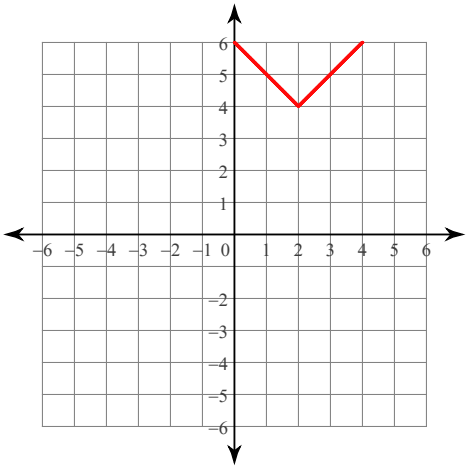
37) $y = |x - 4| - 2$



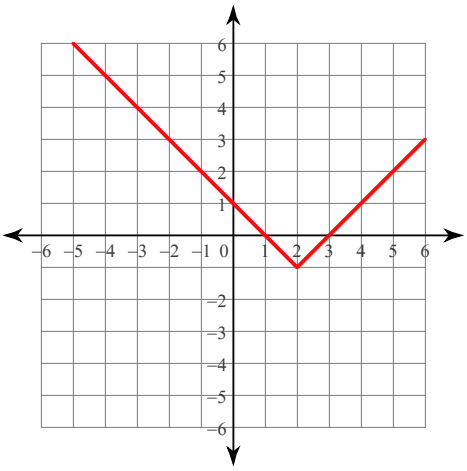
38) $y = |x - 3| + 2$



39) $y = |x - 2| + 4$



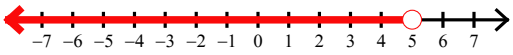
40) $y = |x - 2| - 1$



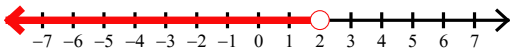
Draw a graph for each inequality.

41) $5 \geq -k$

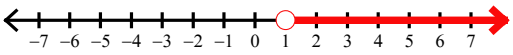
42) $-5 < -x$



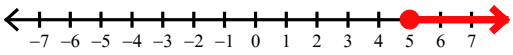
43) $b < 2$



44) $-x < -1$

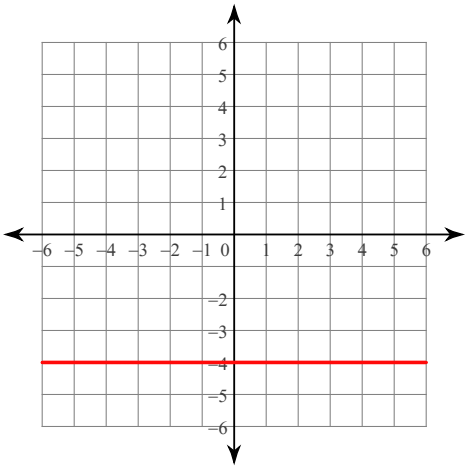


45) $5 \leq m$

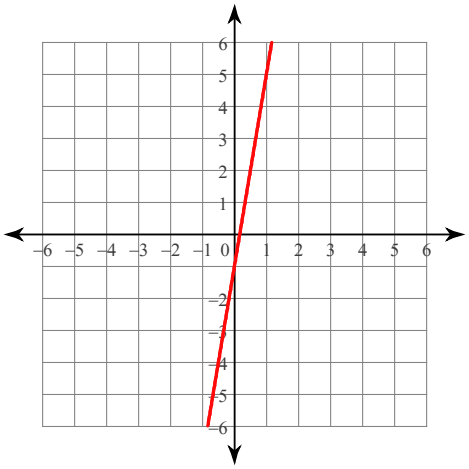


Sketch the graph of each line.

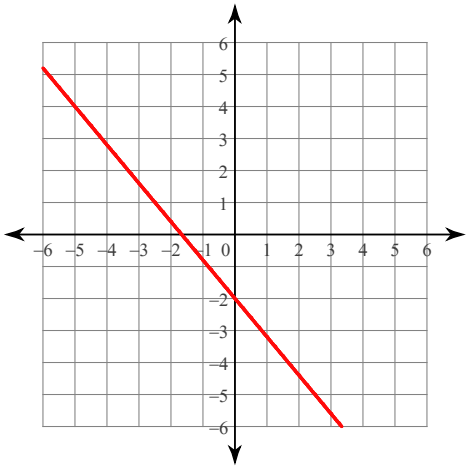
46) $y = -4$



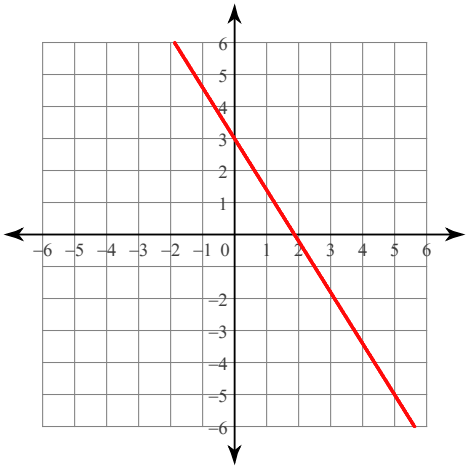
47) $6x - y = 1$



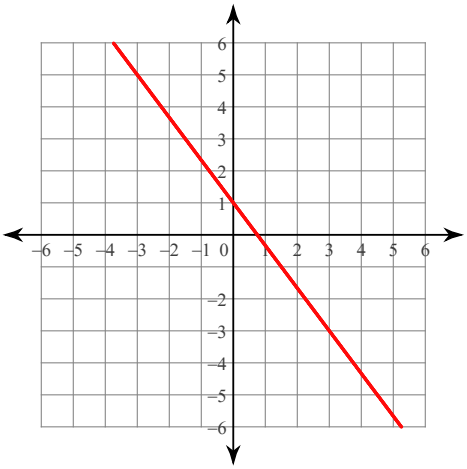
48) $6x + 5y = -10$



49) $8x + 5y = 15$

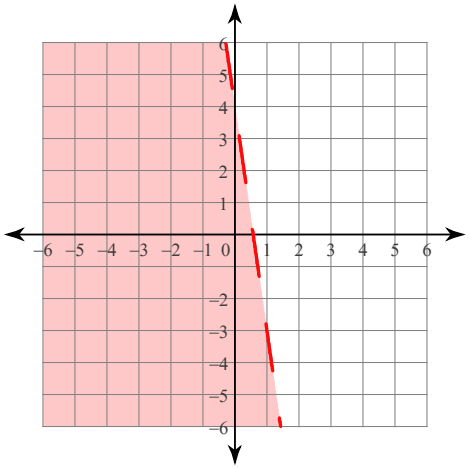


50) $4x + 3y = 3$

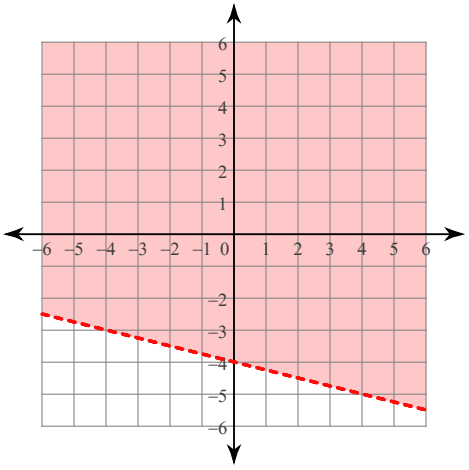


Sketch the graph of each linear inequality.

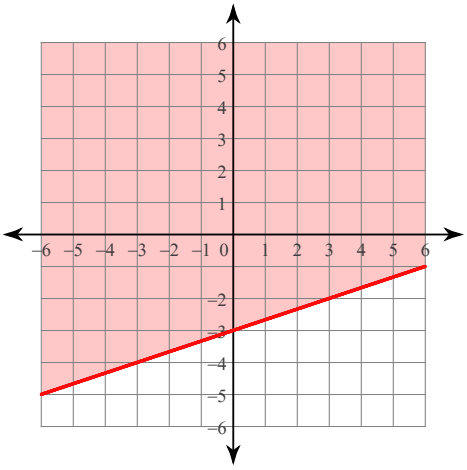
51) $y < -7x + 4$



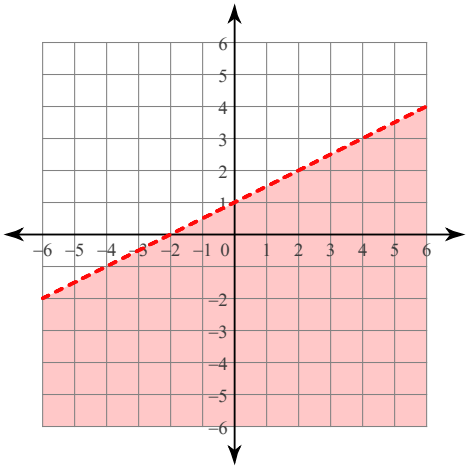
52) $y > -\frac{1}{4}x - 4$



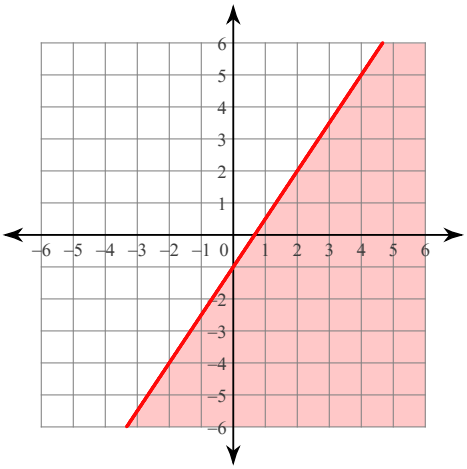
53) $y \geq \frac{1}{3}x - 3$



54) $y < \frac{1}{2}x + 1$

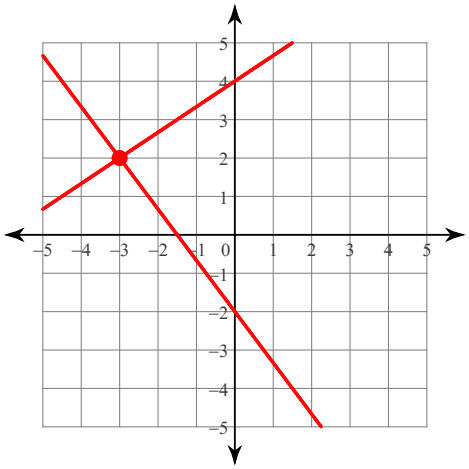


55) $y \leq \frac{3}{2}x - 1$



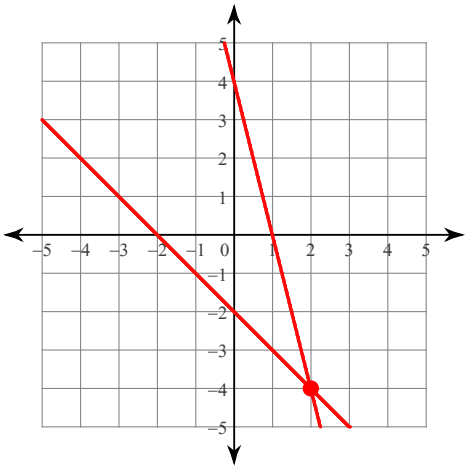
Solve each system by graphing.

56) $4x + 3y = -6$
$2x - 3y = -12$



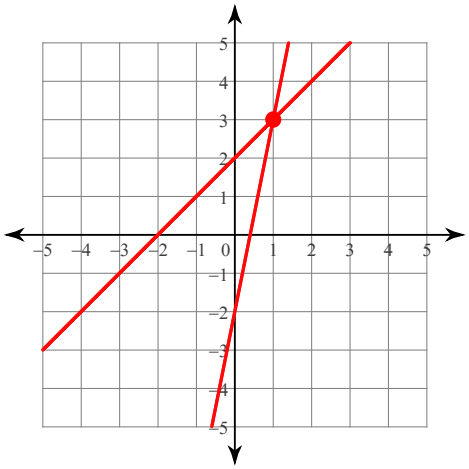
$(-3, 2)$

57) $4x + y = 4$
$x + y = -2$



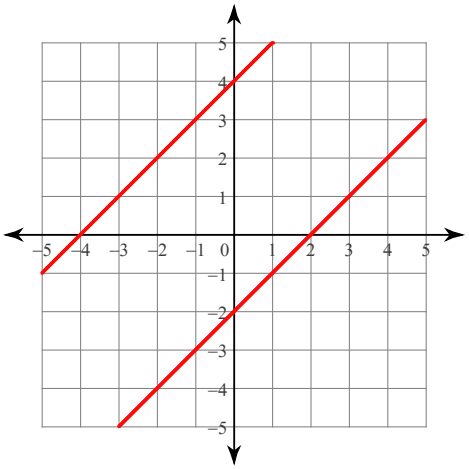
$(2, -4)$

58) $5x - y = 2$
$x - y = -2$



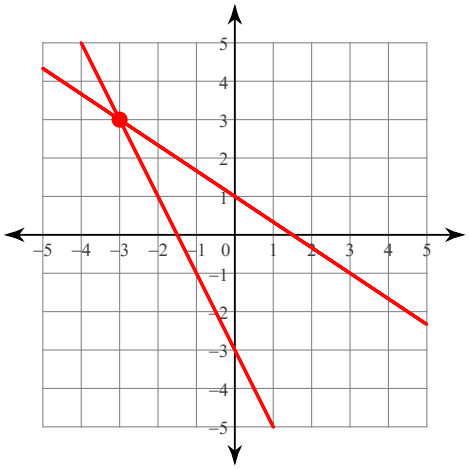
$(1, 3)$

59) $x - y = 2$
$x - y = -4$



No solution

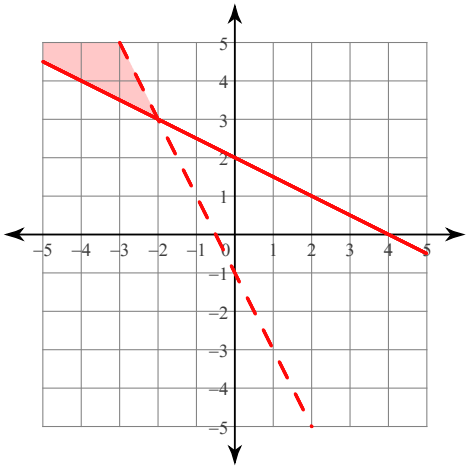
60) $2x + y = -3$
$2x + 3y = 3$



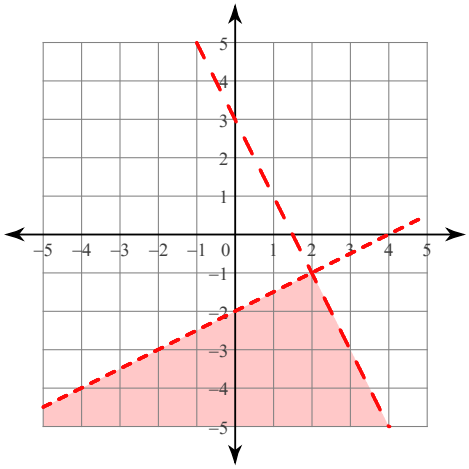
$(-3, 3)$

Sketch the solution to each system of inequalities.

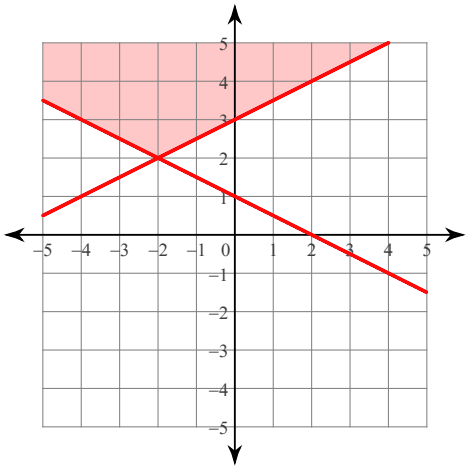
61) $x + 2y \geq 4$
$2x + y < -1$



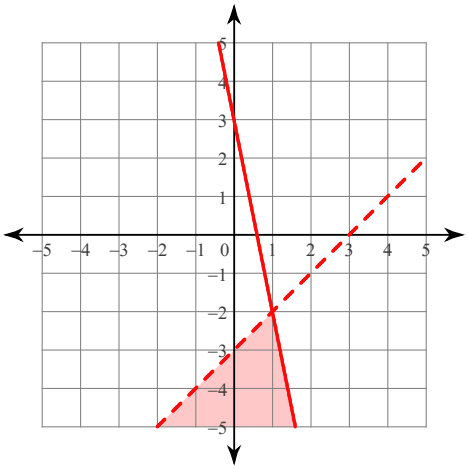
62) $x - 2y > 4$
$2x + y < 3$



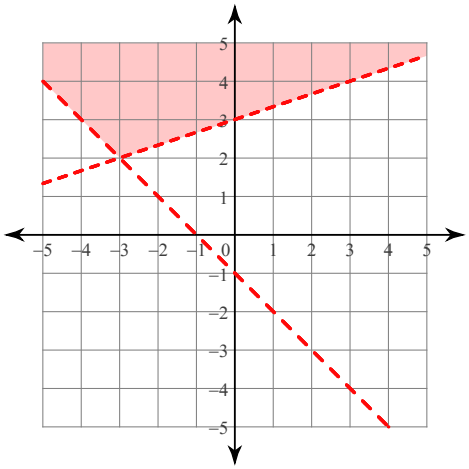
63) $x + 2y \geq 2$
$x - 2y \leq -6$



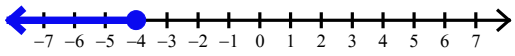
64) $5x + y \leq 3$
$x - y > 3$



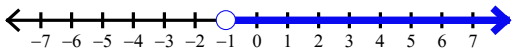
65) $x - 3y < -9$
$x + y > -1$



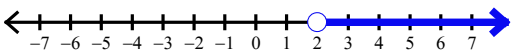
Write an inequality for each graph.

66) 

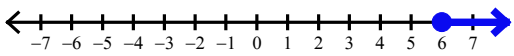
$x \leq -4$

67) 

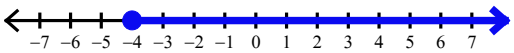
$x > -1$

68) 

$a > 2$

69) 

$a \geq 6$

70) 

$p \geq -4$