Algebra 2

Evaluate each expression without a calculator.

1) $\left(3\frac{1}{3}\right)\left(-2\frac{1}{3}\right) - -3\frac{3}{5}$

2) $\frac{-1}{4} - 2 \div -3\frac{1}{3}$

3) $(-1.4) \times 4.4 + 2.7$

4) $4.2 \times 2.3 \times (-1.4)$

Write in simplest radical form.

5) $\sqrt{28}$

6) $\sqrt{20}$

7) $\sqrt{72}$

8) $\sqrt{48}$

Solve each equation.

9) $3(b-3) = 3b - 9$

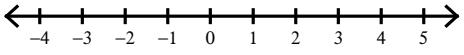
10) $-6(7m+2) + 3 = -9 - 7m$

11) $|-10 + m| = 16$

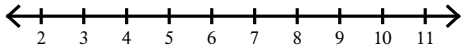
12) $-7\left|\frac{v}{7}\right| = -9$

Solve each inequality and graph its solution.

13) $-8x + 2 - 8 < -14$

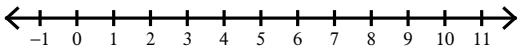


14) $-6k + 3(4k + 3) \geq 45$

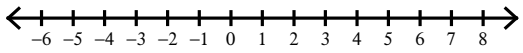


Solve each compound inequality and graph its solution.

15) $-8 < x - 10 < 0$

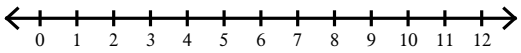


16) $3 + x \geq 6$ or $x - 2 < -3$

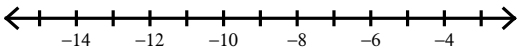


Solve each inequality and graph its solution.

17) $|n - 6| \leq 5$



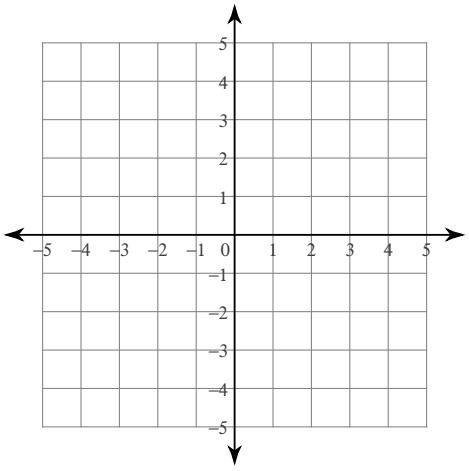
18) $-10|x + 9| > -30$



Solve each system by graphing.

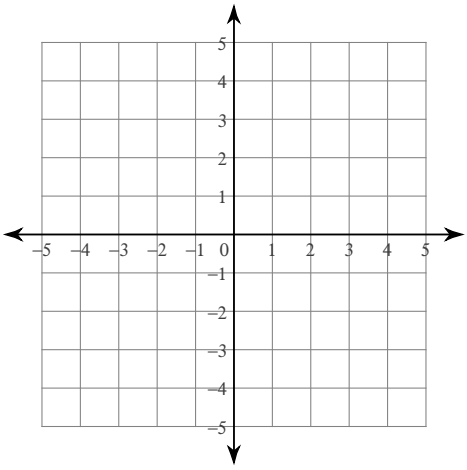
19) $y = -\frac{1}{4}x - 1$

$y = -\frac{1}{4}x + 1$



20) $x + y = 2$

$4x + y = -1$



Solve each system algebraically.

21) $5x - 6y = -3$

$7x + y = -23$

22) $12x - 40y = 0$

$3x - 10y = 0$

Factor each completely.

23) $n^2 - 3n - 10$

24) $m^2 - 14m + 48$

25) $3m^2 - 15m - 72$

26) $4r^2 - 8r - 140$

27) $7x^2 - 13x + 6$

28) $2n^2 - 21n + 54$

29) $6k^2 + 17k + 12$

30) $10a^2 - 9a - 7$

31) $16n^2 + 24n + 9$

32) $25k^2 - 9$

Solve each equation by factoring.

33) $(a - 7)(a + 7) = 0$

34) $m^2 = -14m - 49$

35) $x^2 - 30 = -x$

36) $p^2 + 5p + 3 = -3$

Solve each equation with the quadratic formula.

37) $12p^2 - 2p - 13 = 0$

38) $6x^2 = -5x + 4$

Solve each equation by taking square roots.

39) $v^2 = 24$

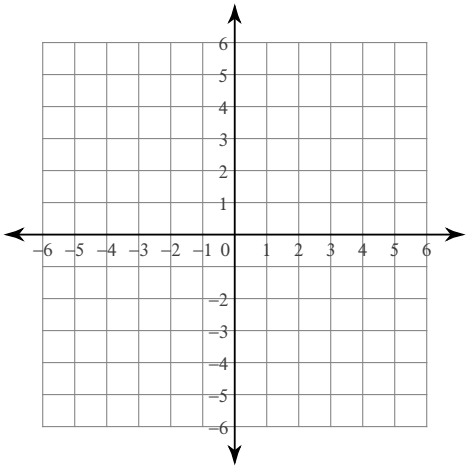
40) $n^2 + 7 = 11$

41) $n^2 + 8 = 76$

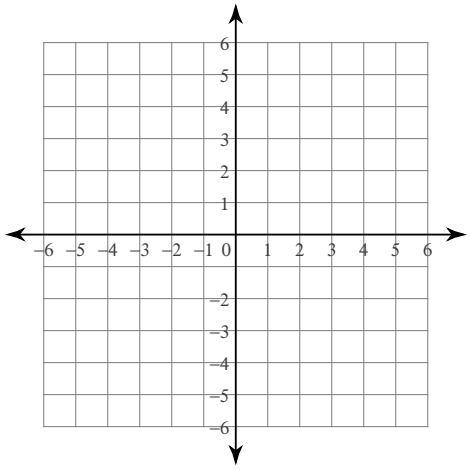
42) $3n^2 - 1 = 221$

Sketch the graph of each line.

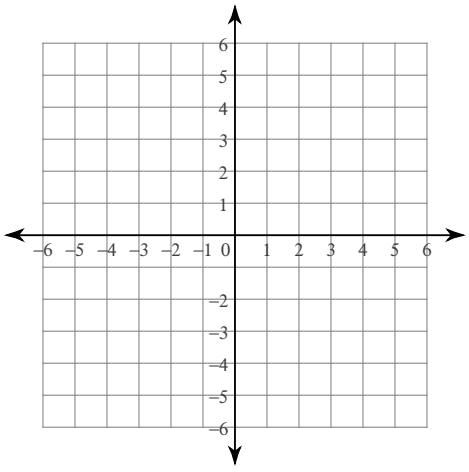
43) $y = -2x + 2$



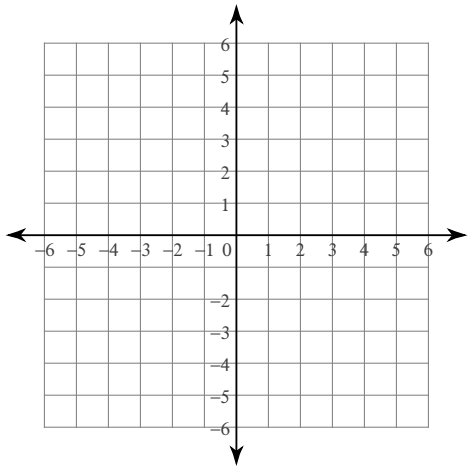
44) $x + y = -4$



45) $y = -4$

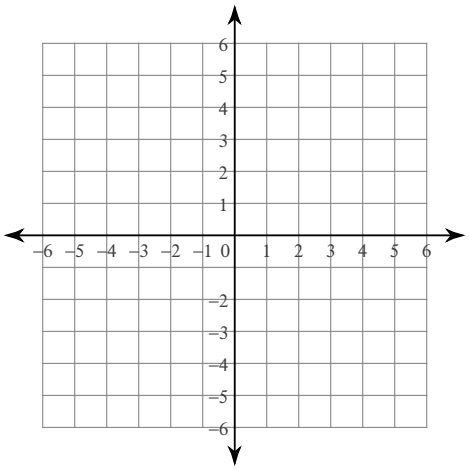


46) $x = 4$

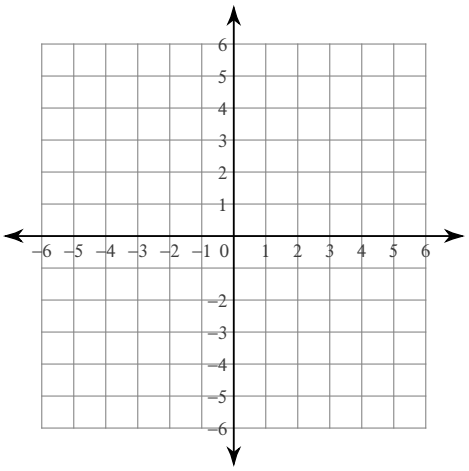


Sketch the graph of each linear inequality.

47) $y < -2x + 3$



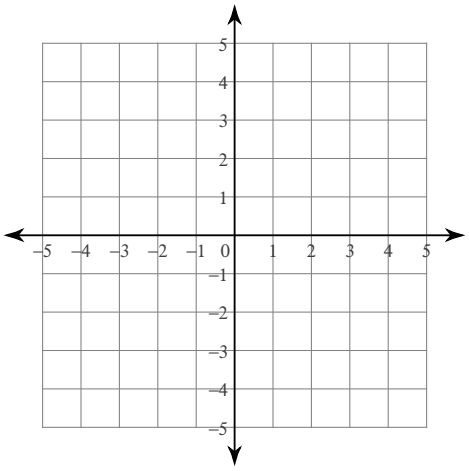
48) $y \geq -\frac{1}{3}x - 1$



Sketch the solution to each system of inequalities.

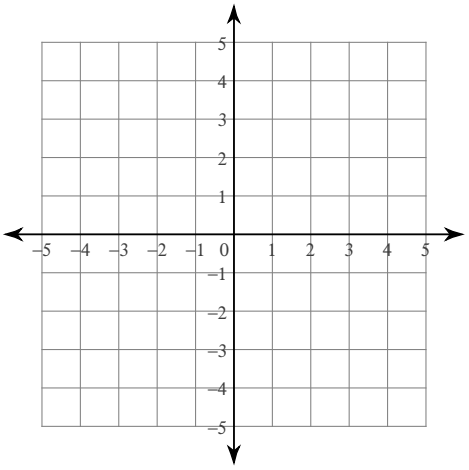
49) $x > -1$

$x - y \leq 2$



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

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



Skip #51-52

Simplify.

53) $(4a^4 - 4a - 5a^2) + (3a + 6a^4 - 8a^2)$

54) $(2x - 4x^3 - 5x^2) - (8x - 3x^3 - 8x^2)$

Find each product.

55) $(2x + 6)^2$

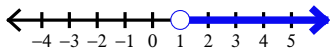
56) $(k + 5)^2$

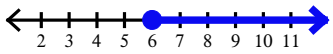
Answers to Algebra 2

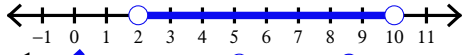
1) $-\frac{188}{45}$ 2) $\frac{7}{20}$ 3) -3.46 4) -13.524

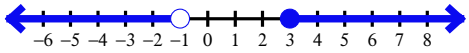
5) $2\sqrt{7}$ 6) $2\sqrt{5}$ 7) $6\sqrt{2}$ 8) $4\sqrt{3}$

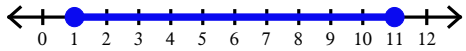
9) { All real numbers. } 10) $\{0\}$ 11) $\{26, -6\}$ 12) $\{9, -9\}$

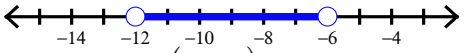
13) $x > 1$: 

14) $k \geq 6$: 

15) $2 < x < 10$: 

16) $x \geq 3$ or $x < -1$: 

17) $1 \leq n \leq 11$: 

18) $-12 < x < -6$: 

19) No solution 20) $(-1, 3)$ 21) $(-3, -2)$

22) Infinite number of solutions 23) $(n-5)(n+2)$ 24) $(m-8)(m-6)$

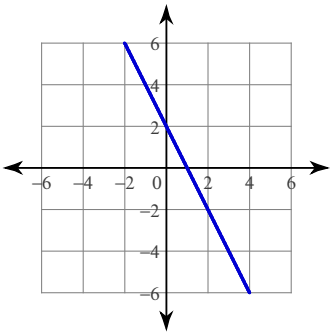
25) $3(m+3)(m-8)$ 26) $4(r+5)(r-7)$ 27) $(7x-6)(x-1)$ 28) $(2n-9)(n-6)$

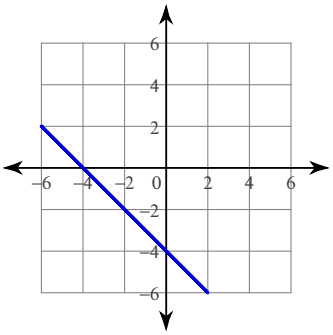
29) $(2k+3)(3k+4)$ 30) $(2a+1)(5a-7)$ 31) $(4n+3)^2$ 32) $(5k+3)(5k-3)$

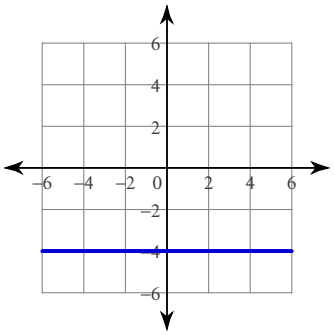
33) $\{7, -7\}$ 34) $\{-7\}$ 35) $\{5, -6\}$ 36) $\{-2, -3\}$

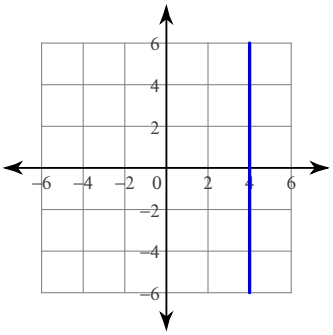
37) $\left\{\frac{1+\sqrt{157}}{12}, \frac{1-\sqrt{157}}{12}\right\}$ 38) $\left\{\frac{1}{2}, -\frac{4}{3}\right\}$ 39) $\{2\sqrt{6}, -2\sqrt{6}\}$

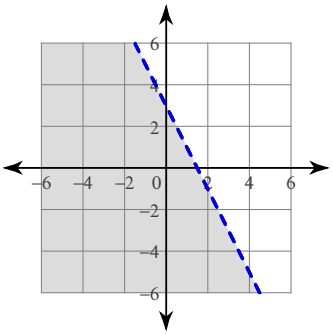
40) $\{2, -2\}$ 41) $\{2\sqrt{17}, -2\sqrt{17}\}$ 42) $\{\sqrt{74}, -\sqrt{74}\}$

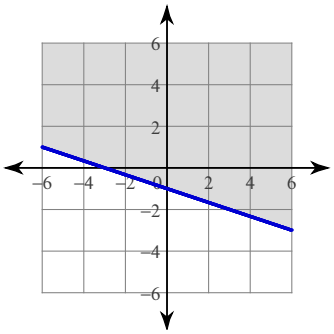
43) 

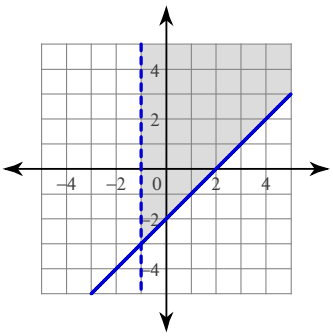
44) 

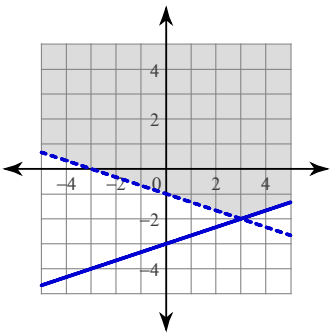
45) 

46) 

47) 

48) 

49) 

50) 

53) $10a^4 - 13a^2 - a$

54) $-x^3 + 3x^2 - 6x$

55) $4x^2 + 24x + 36$

56) $k^2 + 10k + 25$