

Due: First day of class, at beginning of hour. Counts as first major grade for course.

Find the distance between each pair of points.

1) $(2, -2), (2, 1)$

2) $(-4, -6), (0, 6)$

Simplify each expression.

3) $-6b(8b - 2) - 3b(4 + 4b)$

4) $4(p + 8) - 2(p - 5)$

5) $-6(6r + 8) - 7r(-2 - 8r)$

6) $5x(x + 8) + 5(2x - 1)$

Solve each equation.

7) $-4 = -4(1 + 8n)$

8) $-16 = -8 + 4(-4x - 2)$

Solve each equation by factoring.

9) $21n^2 + 6 = 23n$

10) $7n^2 = -21 + 52n$

11) $40x^2 = -144 + 264x$

12) $21n^2 - 182n = -336$

Solve each equation by taking square roots.

13) $2b^2 + 6 = 24$

14) $4b^2 + 2 = 102$

15) $3a^2 - 2 = 241$

16) $7p^2 - 5 = 247$

Solve each equation with the quadratic formula.

17) $5n^2 = 100 - 5n$

18) $2x^2 = 6 - 11x$

19) $5n^2 - 22 = n$

20) $2x^2 = 9 - 3x$

Factor each completely.

21) $5n^2 + 3n$

22) $9n^2 - 12n$

23) $21a^2 + 15a$

24) $7n^2 + 6n + 48$

25) $2r^2 + 5r + 3$

26) $5x^2 - 6x$

$$27) 3x^2 - 4x - 32$$

$$28) 3n^2 + 10n$$

$$29) 14n^2 + 20n$$

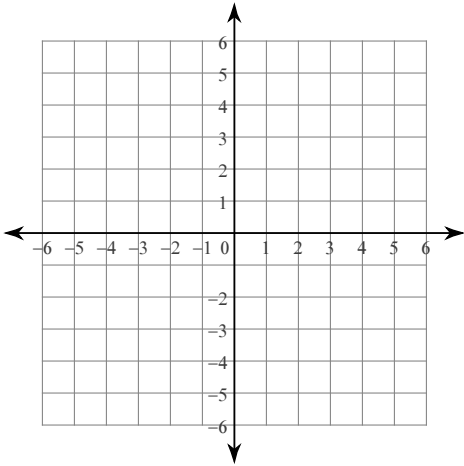
$$30) 5p^2 - 26p + 24$$

$$31) 75k^2 - 30k + 3$$

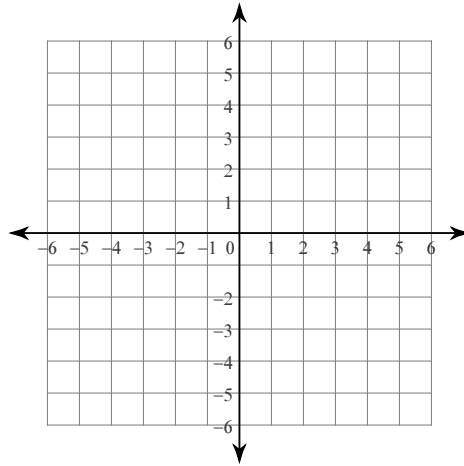
$$32) p^2 + 8p + 16$$

Graph each equation.

$$33) y = |x - 3| + 1$$

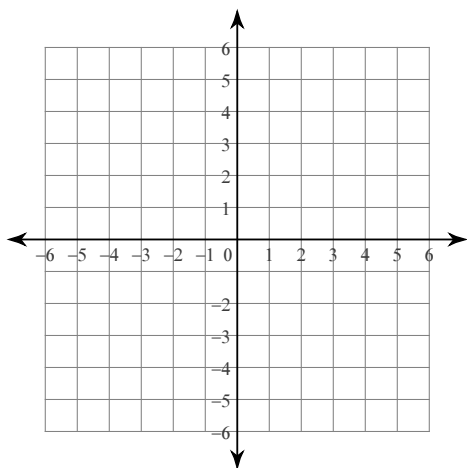


$$34) y = -|x - 1|$$

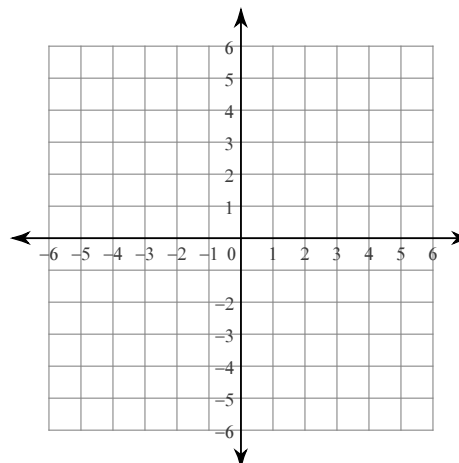


Sketch the graph of each linear inequality.

35) $y \leq x + 2$

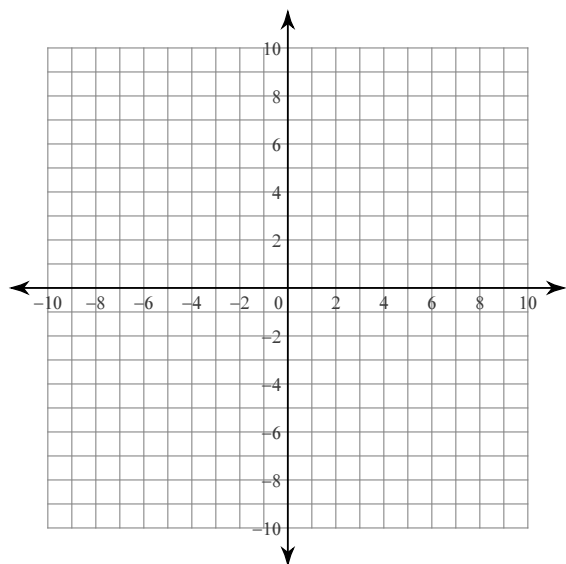


36) $y < \frac{5}{2}x$

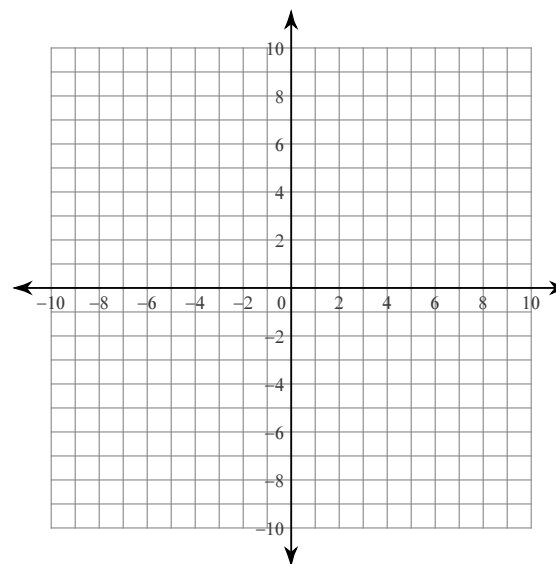


Sketch the solution to each system of inequalities.

37) $3x + 2y \leq -4$
 $x - y < -8$



38) $x \geq 8$
 $x - 4y \geq -24$



Write the standard form of the equation of the line described.

39) through: $(0, -1)$, parallel to $y = \frac{3}{4}x - 4$

40) through: $(-3, -3)$, parallel to $y = x + 3$

41) through: $(-1, -1)$, perp. to $y = \frac{1}{2}x + 1$

42) through: $(2, 5)$, perp. to $y = 2x - 1$

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

43) through: $(1, -2)$, slope = -5

44) through: $(0, 3)$, slope = -2

Write the standard form of the equation of each line.

45) $y = -8x - 2$

46) $y = -\frac{5}{2}x + 4$

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

47) through: $(1, -4)$, slope = undefined

48) through: $(-3, 5)$, slope = -2

Given the midpoint and one endpoint of a line segment, find the other endpoint.

49) Endpoint: $(1, 5)$, midpoint: $(1, -6)$

50) Endpoint: $(6, 8)$, midpoint: $(1, 7)$

Find each product.

51) $(3x + 7)(-4x - 6)$

52) $(8x + 1)(x + 7)$

53) $(-3k - 4)(-k - 4)$

54) $(8a^3 + 2b)^2$

55) $(5x - 3y)(5x + 3y)$

56) $(-3b^2 - 3a)^2$

Simplify.

57) $\sqrt{12} \cdot \sqrt{3}$

58) $\sqrt{8} \cdot \sqrt{6}$

59) $\sqrt{20} \cdot \sqrt{20}$

60) $\sqrt{6} \cdot \sqrt{6}$

61) $\sqrt{3}(3 + \sqrt{6})$

62) $\sqrt{5}(3 + \sqrt{5})$

63) $\sqrt{2}(\sqrt{2} + 3)$

64) $-2\sqrt{15}(\sqrt{3} + \sqrt{10})$

Name the set or sets to which each number belongs.

65) $\sqrt{\frac{320}{2}}$

66) -12

67) 0

68) 11

Simplify each expression.

$$69) (-14xy^2 - 5x^4) - (3y + 8x^4 + 13xy^2) - (4y - x^4)$$

$$70) (8b^3 + 7a^4b^2) - (-14a^4b^4 + a^4b^2 + 12b^3) + (-3b^3 + 5a^4b^2)$$

$$71) (y^3 + 11xy^4) + (-13xy^4 - 5y^3 + 10) + (-y^2 - 6)$$

Find the value of x or y so that the line through the points has the given slope.

$$72) (19, 7) \text{ and } (20, y); \text{ slope: } 6$$

$$73) (7, -12) \text{ and } (x, 9); \text{ slope: } \frac{7}{3}$$

Solve each system by elimination.

$$74) \begin{aligned} 7x - 6 &= -6y \\ -3y - 5x &= 6 \end{aligned}$$

$$75) \begin{aligned} -1 &= \frac{3}{8}x - \frac{1}{2}y \\ -16y - 8 + 2x &= 0 \end{aligned}$$

$$76) \begin{aligned} -15x + 5y &= 0 \\ 24x - 8y &= 0 \end{aligned}$$

$$77) \begin{aligned} 7x - 9y &= 17 \\ -2x - 2y &= 18 \end{aligned}$$

Solve each system by graphing.

$$78) \begin{cases} \frac{1}{4}x = 1 + \frac{1}{2}y \\ -y - x = 5 \end{cases}$$

$$79) \begin{cases} 4y = -x - 32 \\ -32 = -17x - 4y \end{cases}$$

Solve each system by substitution.

$$80) \begin{cases} -x - 7y = 4 \\ 3x + 3y = 6 \end{cases}$$

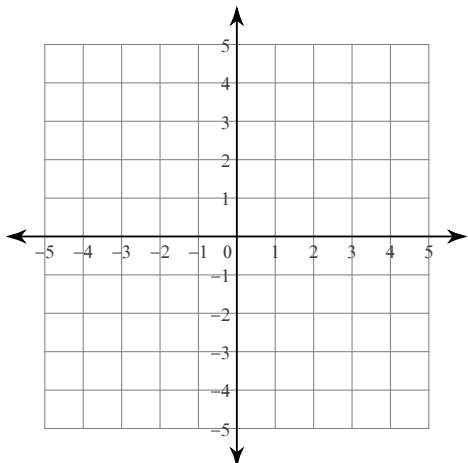
$$81) \begin{cases} -7x - 7y = 0 \\ -x - 4y = -18 \end{cases}$$

$$82) \begin{cases} 5x - y = -20 \\ -8x + 5y = 15 \end{cases}$$

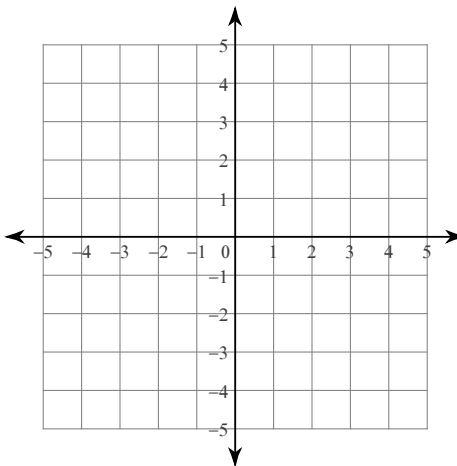
$$83) \begin{cases} -x + 8y = 11 \\ -6x + 6y = 24 \end{cases}$$

Sketch the solution to each system of inequalities.

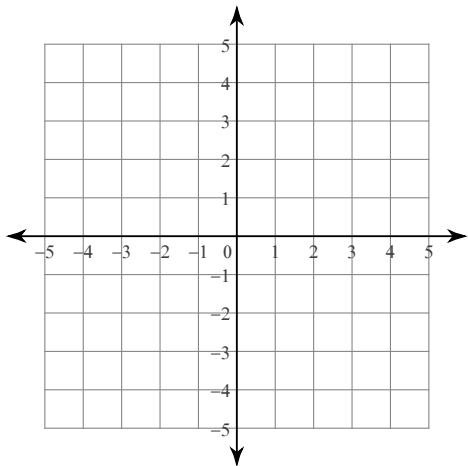
84) $y > 4x - 3$
 $y \leq -x + 2$



85) $y \geq \frac{5}{3}x + 3$
 $y > \frac{5}{3}x - 3$



86) $y > -6x + 3$
 $y \leq -x - 2$



87) $y > -\frac{3}{2}x - 2$
 $y \leq x + 3$

