

HONORS ALGEBRA 2: Accuracy required, no calculators**Solve each equation.**

1) $150 = -6 - 3(7x - 3)$

2) $117 = 3 - 3(-5v - 8)$

3) $-5x - 7(x + 6) = -90$

4) $-4n - 5n = 3(-7n + 1) - 3(5 - 4n)$

5) $-6(x + 7) = 6(1 - 2x) - 6$

6) $-3(4 + 6v) + 6 = -4(1 + 5v)$

7) $7(-1 + v) = 3v - (2 + v)$

8) $-8(4 + 5p) = -7(1 + 5p)$

Solve each equation for the indicated variable.

9) $a + k = v - w$, for a

10) $g = y + x + c$, for x

11) $ka = w - v$, for a

12) $c - a = d + r$, for a

Solve each absolute value equation.

13) $5|3p| = 105$

14) $|3 + 4a| + 1 = 14$

$$15) \frac{|-3v - 5|}{2} = 4$$

$$16) -9 + |4n - 8| = 19$$

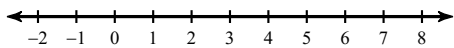
Solve each proportion.

$$17) \frac{m - 7}{5} = \frac{m}{4}$$

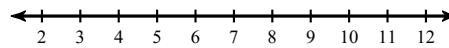
$$18) \frac{4}{b} = \frac{3}{b + 4}$$

Solve each inequality and graph its solution.

$$19) 4(3 + 6b) > 84$$

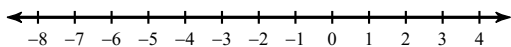


$$20) -110 \leq -5(2x + 6)$$

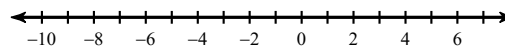


Solve each compound inequality and graph its solution.

$$21) -27 < 8x + 5 \leq -11$$

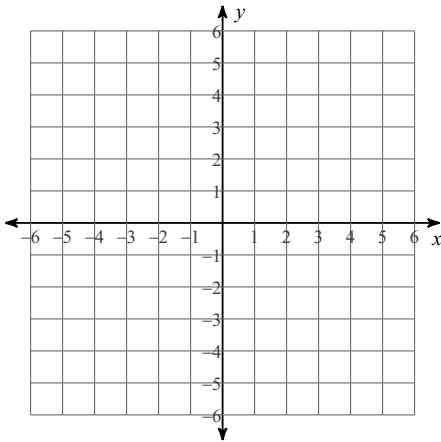


$$22) 3m + 9 > 15 \text{ or } 7 - 7m > 56$$

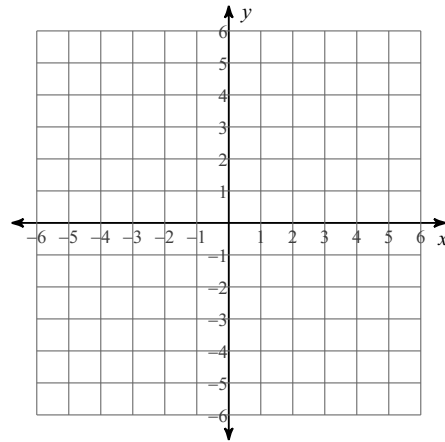


Given the standard form of the line, find the x- and y-intercepts. Then sketch the graph of each line. For slope-intercepts, apply rise over run when graphing the line.

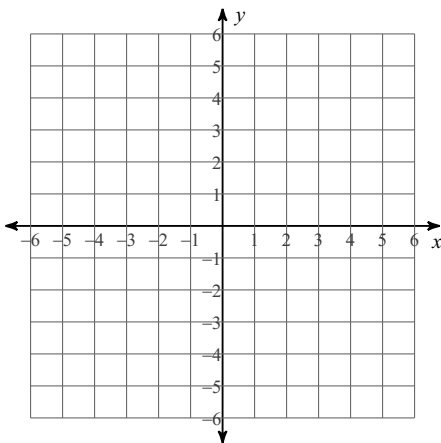
23) $5x + 2y = -2$



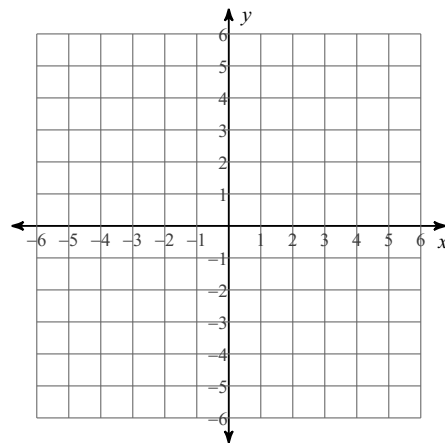
24) $8x - 5y = 15$



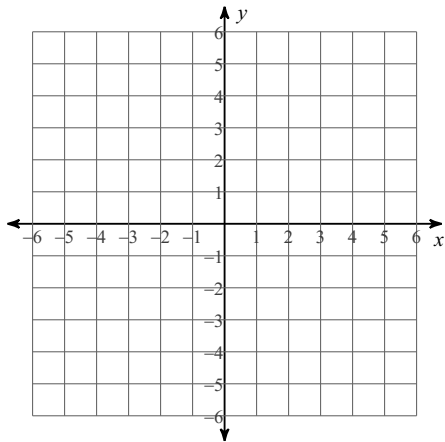
25) $x + 2y = -2$



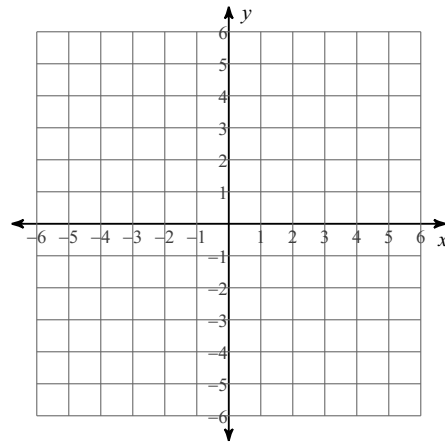
26) $x - y = -2$



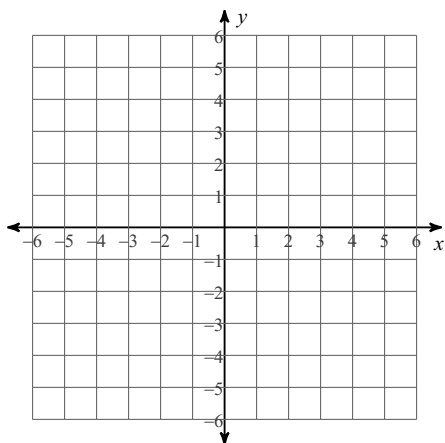
$$27) y = \frac{9}{4}x - 5$$



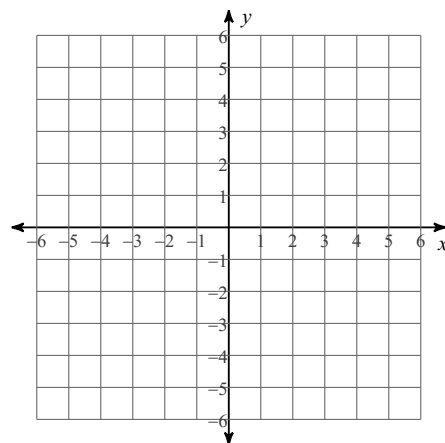
$$28) y = \frac{3}{5}x + 3$$



$$29) 3y + 6 = -5x$$

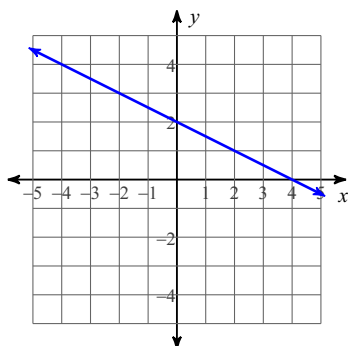


$$30) -x - 2 = 0$$

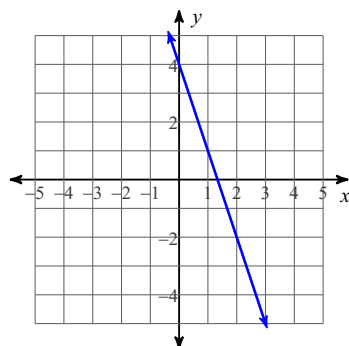


Write the slope-intercept form of the equation of each line.

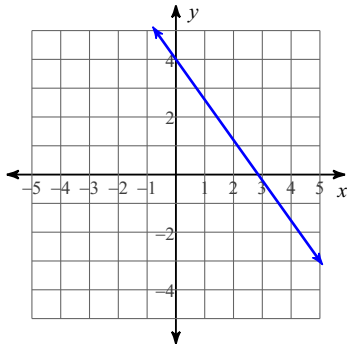
31)



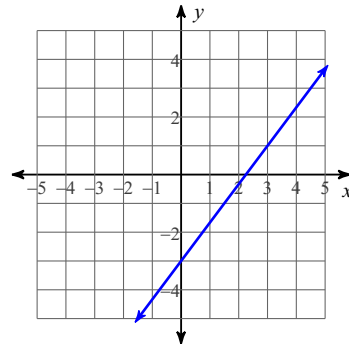
32)



33)



34)



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

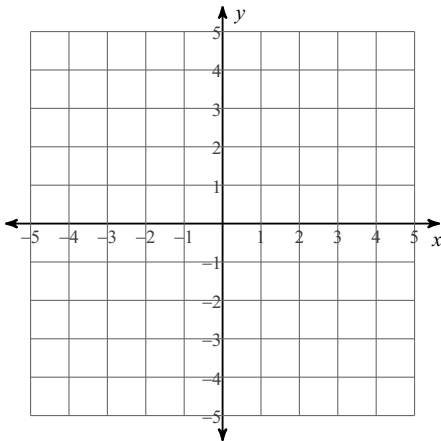
35) through: $(0, -2)$ and $(1, 2)$ 36) through: $(-1, 0)$ and $(-2, 4)$

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

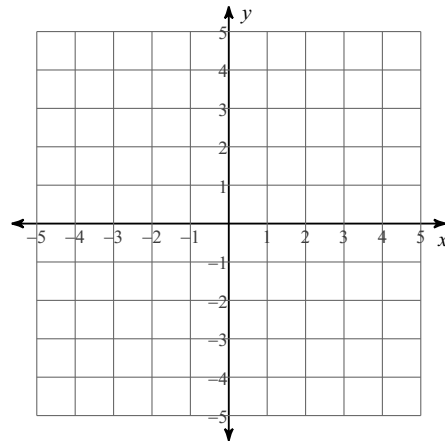
37) through: $(-2, 4)$, parallel to $y = -\frac{5}{2}x - 5$ 38) through: $(4, 1)$, perp. to $y = -\frac{3}{2}x - 1$

Solve each system by graphing.

$$\begin{aligned} 39) \quad & x - 4y = -8 \\ & 3x - 2y = 6 \end{aligned}$$



$$\begin{aligned} 40) \quad & 3x - y = -4 \\ & 3x - y = -2 \end{aligned}$$



Solve each system by elimination.

$$\begin{aligned} 41) \quad & 9x - 5y = 18 \\ & 10x - 2y = -12 \end{aligned}$$

$$\begin{aligned} 42) \quad & 4x - 8y = 20 \\ & 5x - 9y = 26 \end{aligned}$$

$$\begin{aligned} 43) \quad & 5x - 10y = -10 \\ & 3x + 7y = 20 \end{aligned}$$

Solve each system by substitution.

$$\begin{aligned} 44) \quad & -x - 6y = -21 \\ & -8x - 3y = 12 \end{aligned}$$

$$\begin{aligned} 45) \quad & 3x - 2y = 8 \\ & -6x + 5y = -8 \end{aligned}$$

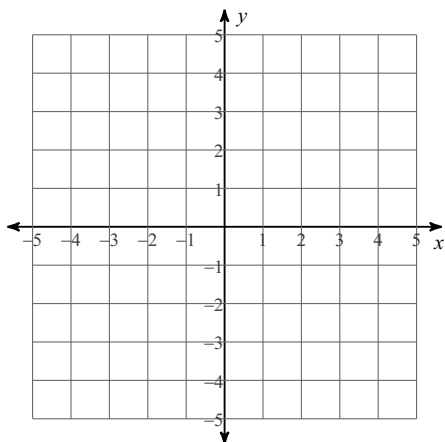
$$\begin{aligned} 46) \quad & 8x - 3y = -7 \\ & 16x - 6y = -14 \end{aligned}$$

47) DeShawn and Alberto are selling fruit for a school fundraiser. Customers can buy small boxes of grapefruit and large boxes of grapefruit. DeShawn sold 3 small boxes of grapefruit and 3 large boxes of grapefruit for a total of \$84. Alberto sold 8 small boxes of grapefruit and 6 large boxes of grapefruit for a total of \$196. What is the cost each of one small box of grapefruit and one large box of grapefruit?

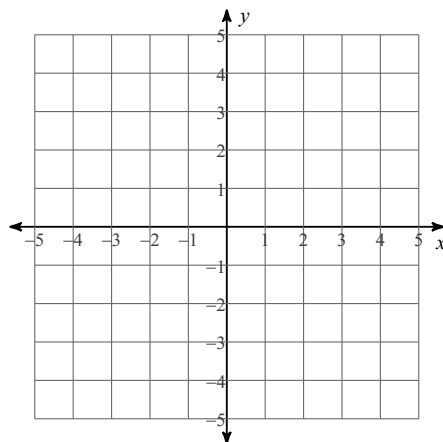
48) Jennifer and Eugene each improved their yards by planting hostas and ivy. They bought their supplies from the same store. Jennifer spent \$98 on 1 hosta and 8 pots of ivy. Eugene spent \$114 on 7 hostas and 4 pots of ivy. What is the cost of one hosta and the cost of one pot of ivy?

Sketch the solution to each system of inequalities.

49) $y \geq -2$
 $x - y > 1$



50) $2x + y < 1$
 $2x - y > 3$



Simplify. Your answer should contain only positive exponents.

51) $\frac{(n^{-1})^{-1}}{2mn^3 \cdot 2m^4}$

52) $\left(\frac{x^{-2}y^3 \cdot 2y}{2y^2}\right)^{-2}$

Simplify.

53) $-4\sqrt{108m^4n^4}$

54) $-6\sqrt{27u^2v}$

Simplify each expression.

55) $(4n^4 - 5n) - (n^4 - 8 - n)$

56) $(7n + 4) + (8n + 7n^2 + 2)$

57) $(5r + 3r^3) - (5r - 8 - 7r^3)$

58) $(8b - 1) + (6b + 7b^3 - 3)$

Find each product.

59) $(2n - 2)(n + 8)$

60) $(6x - 8)(3x - 6)$

61) $(x + 4)(2x - 8)$

62) $(6n - 1)(6n + 5)$

63) $(6x - 7y)(2x - 4y)$

64) $(8u + v)(5u - 8v)$

Factor each completely.

65) $n^2 - n$

66) $p^2 + 15p + 54$

67) $p^2 - 3p - 4$

68) $3k^2 + 6k - 189$

69) $3m^2 + 4m$

70) $42m^2 + 300m - 288$

71) $2r^2 - 17r + 30$

72) $45a^2 + 260a - 60$

73) $9x^2 + 24x - 20$

74) $8x^2 + 26x + 21$

75) $4k^2 + 4k + 1$

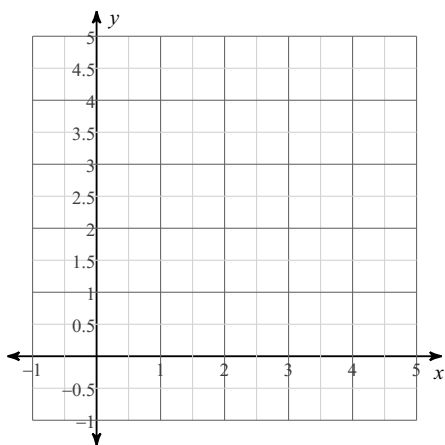
76) $25r^2 + 20r + 4$

77) $9a^2 + 6a + 1$

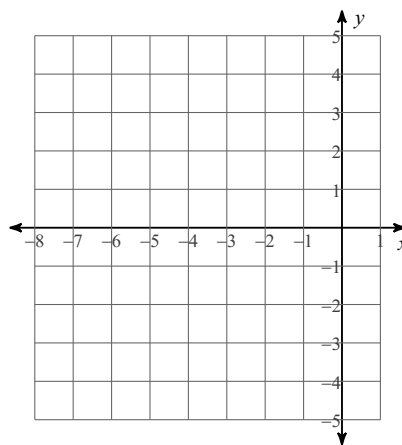
78) $100a^2 - 36$

Sketch the graph of each function.

79) $y = -(x - 2)^2 + 4$



80) $y = 2(x + 4)^2 - 4$



Solve each equation by factoring.

81) $b^2 + 56 = 15b$

82) $n^2 = 3n + 4$

83) $r^2 - r = 2$

84) $n^2 - 12 = 4n$

85) $7x^2 - 5x = 6x^2$

86) $b^2 = 6b$

87) $a^2 + 16a + 16 = 6a$

88) $x^2 - 48 = 2x$

Solve each equation by taking square roots.

89) $-6 - 8v^2 = -134$

90) $100x^2 - 5 = -4$

91) $7m^2 + 10 = 17$

92) $7 - 2x^2 = -65$

Simplify. Rationalize the denominator when necessary.

93) $\frac{5\sqrt{2}}{2\sqrt{5}}$

94) $\frac{\sqrt{9}}{5\sqrt{6}}$

95) $\frac{\sqrt{4}}{\sqrt{5}}$

96) $\frac{2\sqrt{5}}{2\sqrt{3}}$

97) $\frac{5\sqrt{2}}{5\sqrt{6}}$

98) $\frac{\sqrt{4}}{5\sqrt{6}}$

99) $\frac{4\sqrt{5}}{2\sqrt{3}}$