

YOU SHOULD NOT USE A CALCULATOR ON THIS ASSIGNMENT UNLESS THE DIRECTIONS SPECIFICALLY STATE IT IS PERMITTED.

Evaluate each expression. Leave answers as reduced improper fractions or integers. No decimals or mixed numbers.

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

2) $\frac{11}{8} + \left(-2\frac{1}{3}\right)$

3) $\left(-\frac{7}{4}\right) - \left(-3\frac{2}{3}\right)$

4) $\frac{7}{5} - 2\frac{5}{6}$

5) $(3 - 1)^2$

6) $4(2 + 3)$

7) $5 \times 5 - 5$

8) $(17 + 7) \div 6$

9) $3\frac{2}{3} \div \left(1\frac{5}{6} + 2\frac{1}{3}\right)$

10) $3\frac{4}{5} - \frac{1}{4} \times 1\frac{3}{4}$

11) $3\frac{1}{3} \div 2\frac{1}{6} + 1\frac{1}{2}$

Evaluate each using the values given.

12) $z^2 - (7 + |y|)$; use $y = 3$, and $z = -6$

13) $|h - j| - (-5 + h)$; use $h = 7$, and $j = 7$

14) $-7 - (x + y + |x|)$; use $x = -\frac{1}{2}$, and $y = -3\frac{2}{7}$

Find each product.

15) $\left(2\frac{6}{7}\right)\left(-\frac{1}{4}\right)$

16) $(-2)\left(\frac{17}{14}\right)$

17) $\left(2\frac{2}{17}\right)\left(-\frac{7}{15}\right)$

18) $\left(\frac{4}{9}\right)\left(-\frac{3}{10}\right)$

Find each quotient.

19) $\frac{-\frac{16}{11}}{-7}$

20) $\frac{\frac{1}{3}}{-\frac{9}{11}}$

21) $\frac{-\frac{17}{14}}{-1}$

Simplify each expression.

22) $(4x^3 + 13 - 14x^2) - (12x^3 + 10 + 6x^2)$

23) $(-3m^4 + 5m^2 - 8m) + (2m^2 - 4m^4 + 5m)$

Find each product.

24) $(3v + 5)(v + 7)$

25) $(-5v - 8)(7v - 7)$

26) $(3r - 6)(-6r - 8)$

27) $(-8p^2 - 4p + 7)(3p^2 + p - 7)$

Solve each equation.

28) $-11(x + 4) = -6(1 + 5x)$

29) $5 - 4(-5x + 6) = 2(10x + 9)$

30) $-4(-3 + 4v) = -4(v + 12)$

Solve each proportion.

31) $\frac{8}{n-4} = \frac{7}{n-5}$

32) $\frac{5}{11} = \frac{k+7}{k+1}$

33) $\frac{p+1}{p+10} = \frac{2}{4}$

34) $\frac{4}{5} = \frac{a-7}{a+9}$

Solve each formula for the given variable.

35) $C = 2\pi r$, for r

36) $F = ma$, for a

37) $S = v/r$, for r

38) $A = P + Prt$, for t

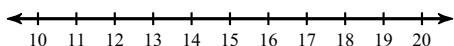
39) $A = P + Prt$, for P

40) $P = 2(L + W)$, for W

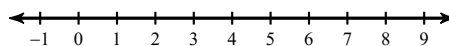
41) $a = (v - u)/t$, for t

Solve each inequality and graph its solution.

42) $-5(2n + 1) - 9n < -6(3n + 3)$



43) $11b + 7(9b + 2) \leq -8(1 - 12b)$



Simplify. Your answer should contain only positive exponents.

44) $3rr^3$

45) $2x^3 \cdot 2x^3$

46) $(-2nm^{-2})^2 \cdot (-m^2)^5$

47) $(-2x^3y^2)^{-3} \cdot (-xy^{-2})^{-1}$

48) $-\frac{yx^0 \cdot -2y}{(-2y^3)^3}$

49) $\left(-\frac{b \cdot -a^3b^3}{a^{-2}b^4}\right)^{-2}$

Simplify each radical. (Exact answers only.)

50) $\sqrt{75}$

51) $\sqrt{180}$

52) $\sqrt{320}$

53) $\sqrt{100}$

54) $\frac{\sqrt{15}}{\sqrt{125}}$

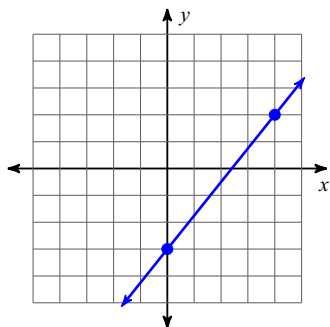
55) $\frac{4\sqrt{10}}{3\sqrt{18}}$

56) $\frac{\sqrt{4}}{5\sqrt{16}}$

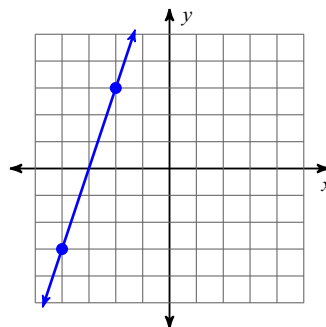
57) $\frac{\sqrt{3}}{4\sqrt{9}}$

Find the slope of each line.

58)



59)



Find the slope of the line through each pair of points.

60) $(18, -3), (13, 3)$

61) $(6, -8), (-15, 14)$

Find the slope of a line parallel to each given line.

62) $-7x + 3 = y$

63) $12 = 4y + 7x$

Find the slope of a line perpendicular to each given line.

64) $4 + x = 0$

65) $\frac{3}{5}x = -5 - y$

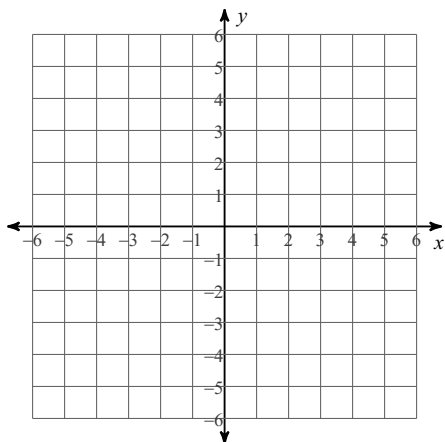
Find the value of x or y so that the line through the points has the given slope.

66) $(-5, -3)$ and $(x, 4)$; slope: $\frac{7}{3}$

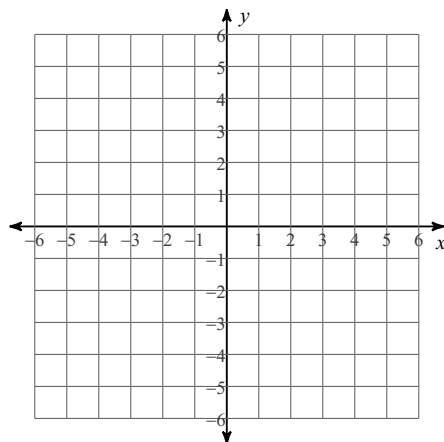
67) $(3, 1)$ and $(-5, y)$; slope: $\frac{1}{4}$

Sketch the graph of each line.

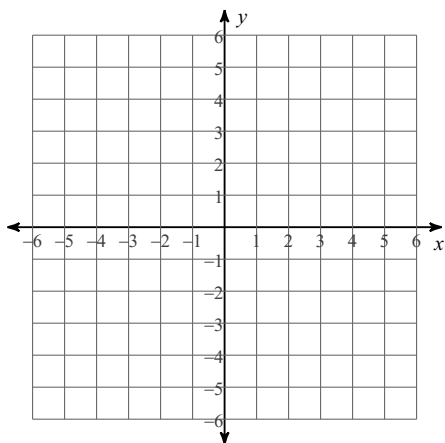
68) $5x + 3y = 15$



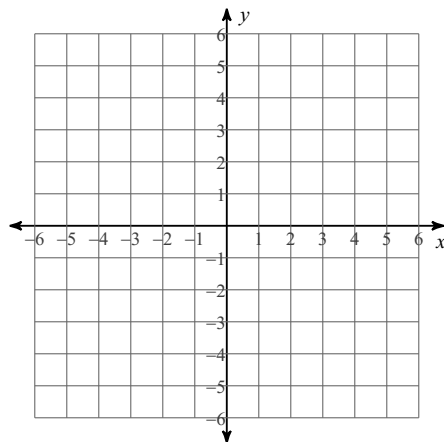
69) $3x + 4y = 20$



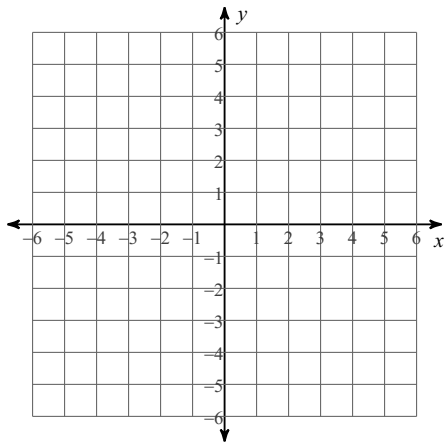
70) $x = -2$



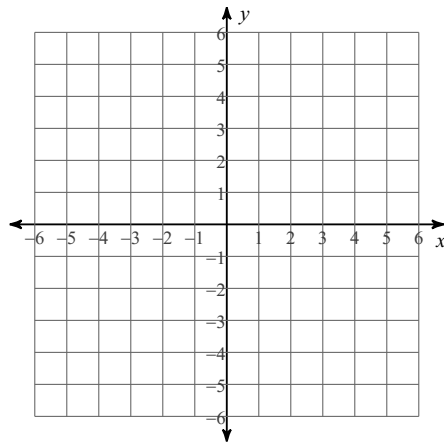
71) $y = \frac{4}{5}x + 4$



72) $0 = -45 + 9x + 15y$

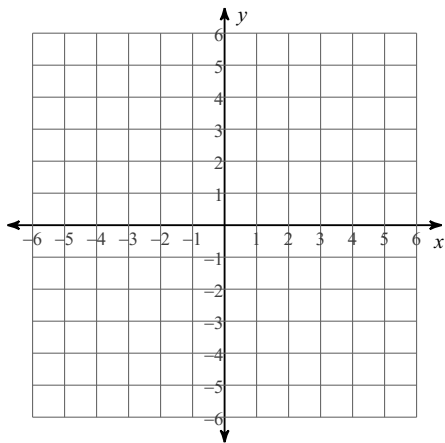


73) $-2x = -6 - 2y$

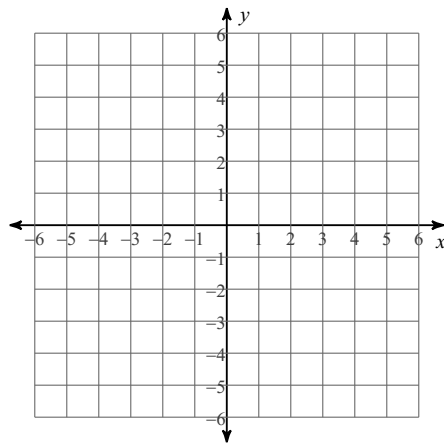


Sketch the graph of each linear inequality.

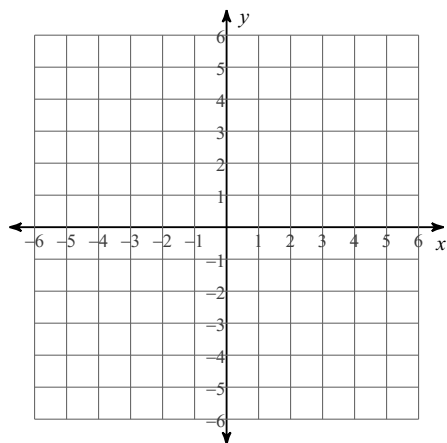
74) $3x - y \geq -5$



75) $3x + 2y \leq 8$



76) $x + 2y < 4$



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

77) through: $(3, -4)$, slope $= \frac{1}{3}$

78) through: $(-4, 3)$, slope $= -\frac{5}{2}$

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

79) through: $(5, 5)$ and $(0, -2)$

80) through: $(-1, 4)$ and $(0, 5)$

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

81) through: $(5, 0)$, parallel to $y = \frac{2}{5}x + 4$

82) through: $(3, -1)$, parallel to $y = \frac{3}{2}x - 3$

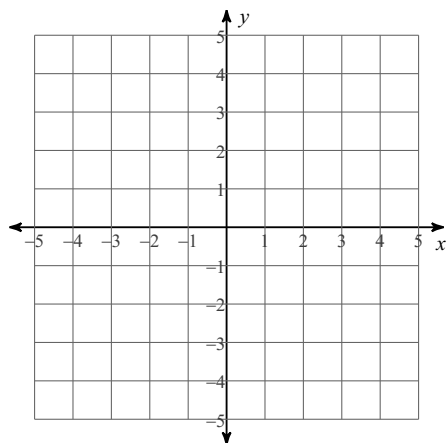
83) through: $(-4, -1)$, perp. to $y = 6x - 2$

84) through: $(-3, 5)$, perp. to $y = \frac{3}{8}x$

Solve each system by graphing.

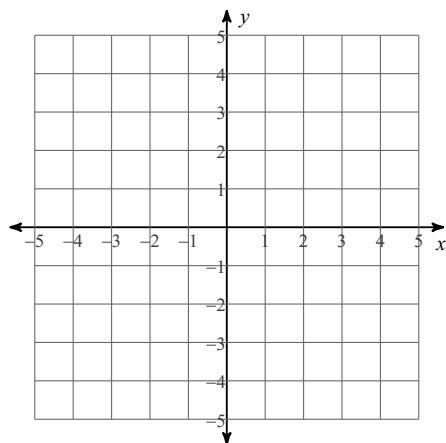
85) $y = -\frac{1}{2}x - 4$

$y = \frac{5}{4}x + 3$



86) $y = \frac{2}{3}x - 3$

$y = -\frac{5}{3}x + 4$



Solve each system by substitution.

87) $-2x + 2y = -20$
 $x + 6y = -18$

88) $x + 8y = 22$
 $2x + 5y = 22$

89) $-2x - 3y = -23$
 $4x + 6y = 46$

90) $-5x + 3y = 14$
 $3x + 7y = 18$

Solve each system by elimination.

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

92) $-4x + 6y = 4$
 $8x - 12y = 4$

93) $7x + 2y = 0$
 $4x + 5y = 0$

94) $8x + 7y = -13$
 $-10x - 8y = 14$

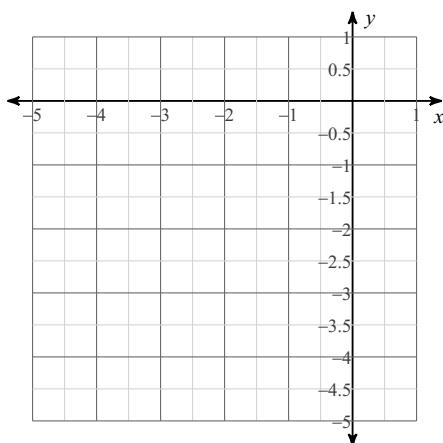
Set up a system of equations to solve.

95) Daniel's school is selling tickets to a spring musical. On the first day of ticket sales the school sold 1 senior citizen ticket and 12 child tickets for a total of \$106. The school took in \$224 on the second day by selling 12 senior citizen tickets and 13 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.

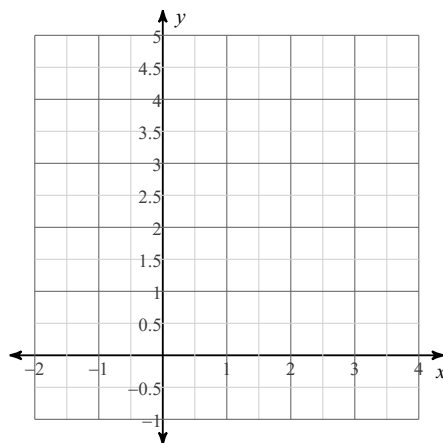
96) Sumalee's school is selling tickets to a fall musical. On the first day of ticket sales the school sold 14 senior citizen tickets and 6 child tickets for a total of \$86. The school took in \$64 on the second day by selling 1 senior citizen ticket and 12 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.

Sketch the graph of each function. Find the axis of symmetry to locate the first x-coordinate for your table (Minimum 3 points in your table)

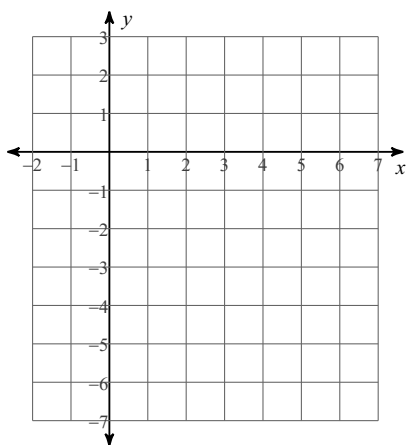
97) $y = \frac{1}{2}x^2 + 2x - 1$



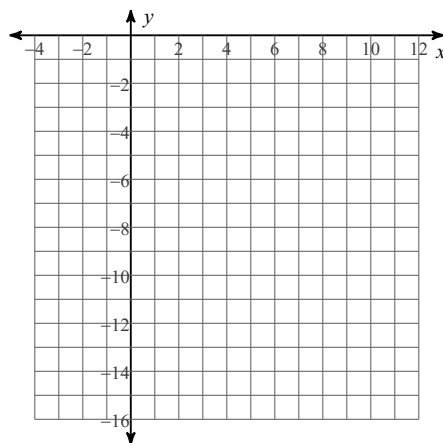
98) $y = -x^2 + 4x$



99) $y = -2x^2 + 16x - 30$



100) $y = -3(x + 1)^2 - 3$



Factor the common factor out of each expression.

101) $-100x^4y^6 + 20x^3y^3 + 70x^2y^3$

102) $80 - 40u^5 + 24uv^3$

103) $27u^5v^2 - 12u^5 + 15u^4$

Factor each completely.

104) $6n^2 - 54n + 120$

105) $x^2 - 2x - 80$

106) $5x^2 - 55x + 50$

107) $n^2 - 2n + 1$

108) $15r^2 + 72r - 15$

109) $7n^2 - 24n + 20$

Solve each equation by factoring and using the zero product property.

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

111) $n^2 - n = 0$

112) $x^2 = 36$

113) $b^2 - 12 = -b$

Solve each equation with the quadratic formula.

114) $n^2 - 5n - 6 = 0$

115) $2p^2 - p - 1 = 0$

116) $v^2 - 1 = 0$

117) $2p^2 - 3 = 5$

118) $-2n^2 = n - 21$

119) $2x^2 - x - 14 = -4$