

**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  $t$

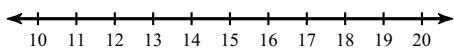
39)  $A = P + Prt$ , for  $P$

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

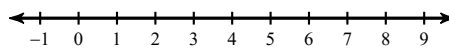
41)  $a = (v - u)/t$ , for  $t$

**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)  $\sqrt{100}$

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

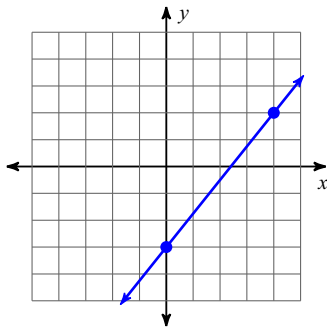
$$55) \frac{4\sqrt{10}}{3\sqrt{18}}$$

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

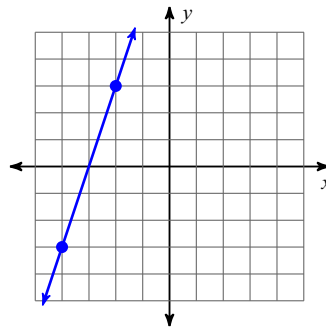
$$57) \frac{\sqrt{3}}{4\sqrt{9}}$$

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

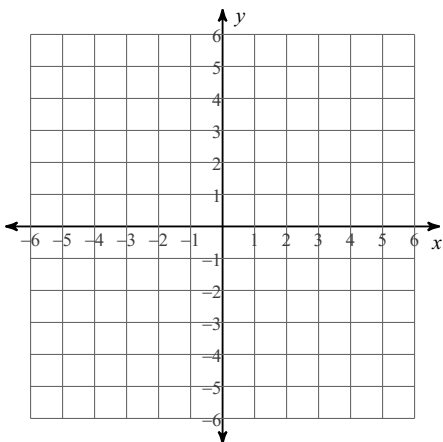
**Find the value of x or y so that the line through the points has the given slope.**

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

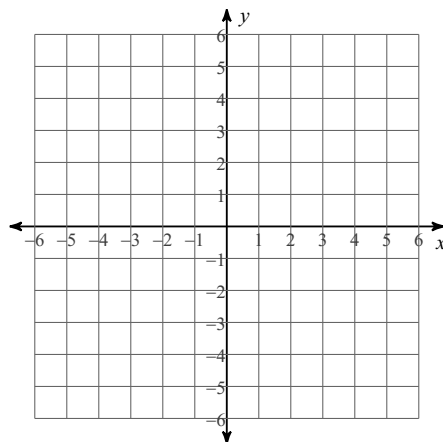
67)  $(3, 1)$  and  $(-5, y)$ ; slope:  $\frac{1}{4}$

**Sketch the graph of each line.**

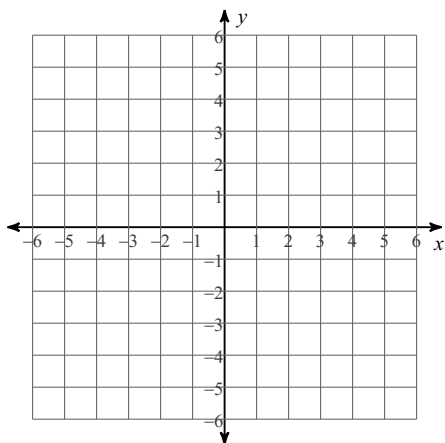
68)  $5x + 3y = 15$



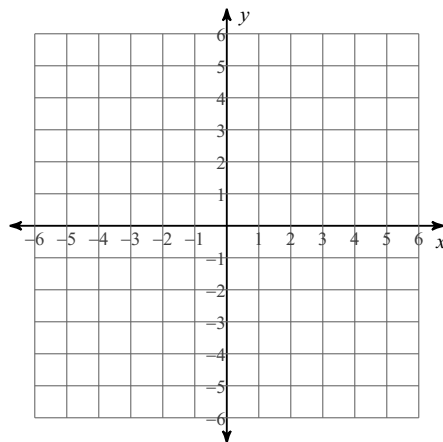
69)  $3x + 4y = 20$



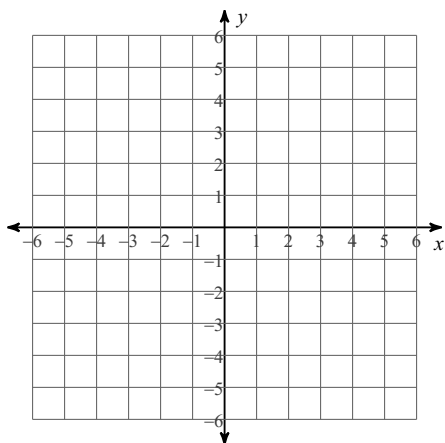
70)  $x = -2$



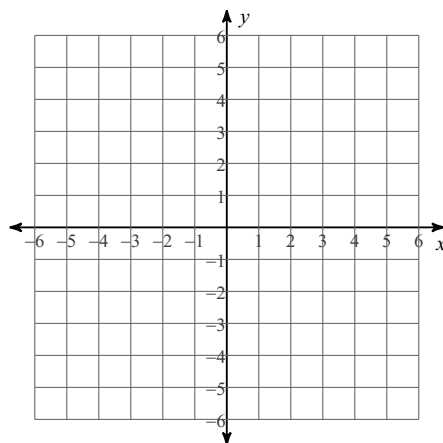
71)  $y = \frac{4}{5}x + 4$



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

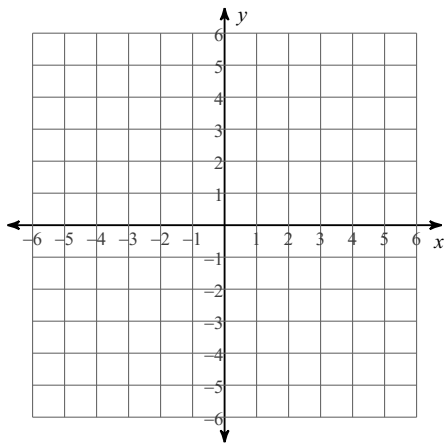


73)  $-2x = -6 - 2y$

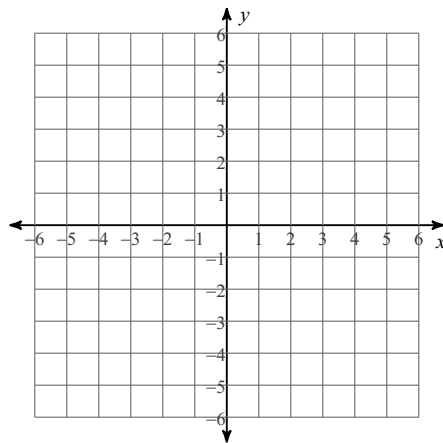


**Sketch the graph of each linear inequality.**

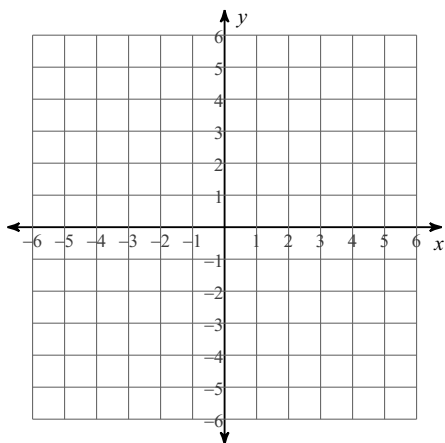
74)  $3x - y \geq -5$



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  $y = \frac{3}{8}x$

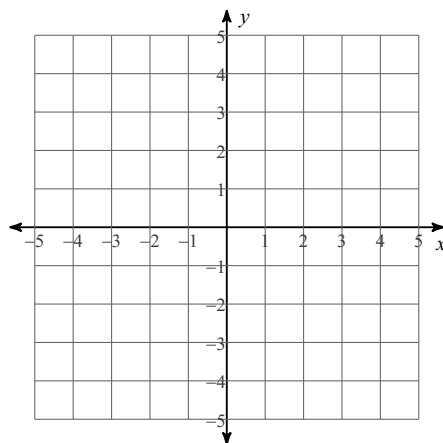
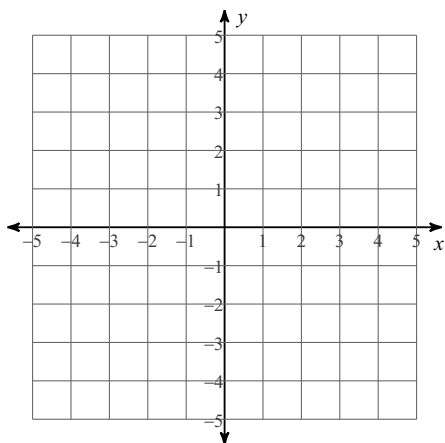
**Solve each system by graphing.**

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

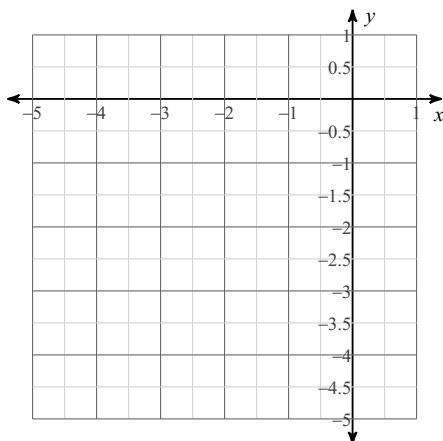
**Set up a system of equations to solve.**

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.

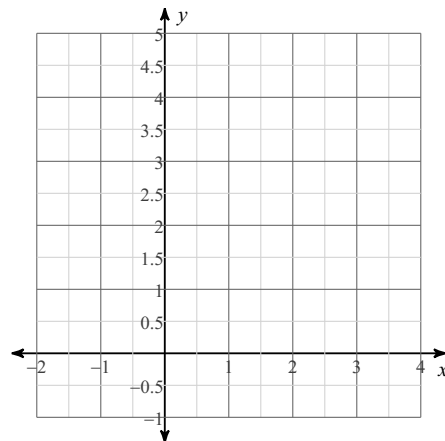
96) Sumalee's school is selling tickets to a fall musical. On the first day of ticket sales the school sold 14 senior citizen tickets and 6 child tickets for a total of \$86. The school took in \$64 on the second day by selling 1 senior citizen ticket and 12 child tickets. Find the price of a senior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

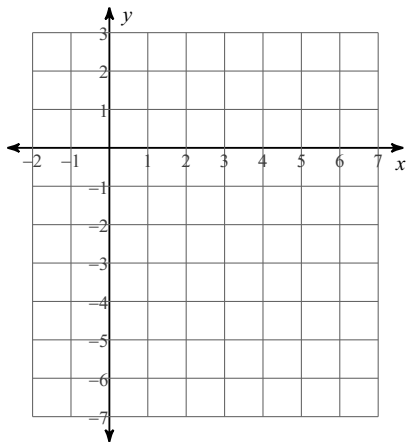
97)  $y = \frac{1}{2}x^2 + 2x - 1$



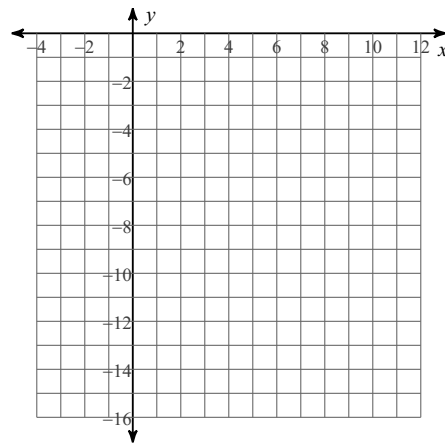
98)  $y = -x^2 + 4x$



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