MODULE C Name_____

LINEAR EQUATIONS & INEQUALITIES

Date_____

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

1) through: $(4, 0)$, slope $= -\frac{1}{2}$

2) through: $(0, 2)$, slope $= 0$

3) through: $(-1, -3)$, slope $= 6$

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

5) through: $(3, -2)$, slope $= -\frac{7}{2}$

6) through: $(1, -2)$, slope $= -\frac{1}{2}$

7) through: $(0, 5)$, slope = undefined

8) through: $(5, 0)$, slope $= 1$

9) through: $(-3, 2)$, slope $= -\frac{1}{7}$

10) through: $(3, 0)$, slope $= -\frac{1}{3}$

11) through: $(-1, 2)$, slope $= -1$

12) through: $(-5, 5)$, slope $= -1$

13) through: $(-1, -5)$, slope $= 7$

14) through: $(-5, -3)$, slope $= 1$

15) through: $(-2, 0)$, slope $= -\frac{3}{5}$

16) through: $(2, 3)$, slope $= -1$

17) through: $(3, -5)$, slope $= -\frac{5}{3}$

18) through: $(5, -2)$, slope = undefined

19) through: $(-2, -5)$, slope $= \frac{1}{2}$

20) through: $(5, -5)$, slope $= -\frac{2}{5}$

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

21) through: $(5, -2)$, slope $= -\frac{4}{7}$

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

23) through: $(3, 0)$, slope $= \frac{1}{3}$

24) through: $(-2, 3)$, slope $= -3$

25) through: $(-5, 2)$, slope $= -\frac{2}{5}$

26) through: $(1, 1)$, slope $= 1$

27) through: $(1, -1)$, slope $= -4$

28) through: $(3, -4)$, slope $= -\frac{8}{3}$

29) through: $(-3, -3)$, slope $= \frac{7}{3}$

30) through: $(4, -5)$, slope $= -2$

31) through: $(5, 5)$, slope $= \frac{2}{5}$

32) through: $(4, -4)$, slope $= -2$

33) through: $(1, 4)$, slope $= 8$

34) through: $(0, 0)$, slope = undefined

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

36) through: $(-3, 2)$, slope $= -\frac{2}{3}$

37) through: $(-5, -2)$, slope $= -\frac{1}{5}$

38) through: $(-1, -1)$, slope $= 4$

39) through: $(-1, 1)$, slope $= -1$

40) through: $(-4, 1)$, slope $= \frac{1}{2}$

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

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

42) through: $(4, 1)$, slope $= \frac{2}{3}$

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

44) through: $(-3, 5)$, slope $= -1$

45) through: $(-1, 3)$, slope $= -\frac{8}{5}$

46) through: $(5, -5)$, slope $= -\frac{6}{5}$

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

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

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

50) through: $(5, -4)$, slope $= -\frac{7}{5}$

51) through: $(4, -2)$, slope $= -\frac{7}{4}$

52) through: $(1, 4)$, slope $= 0$

53) through: $(1, -1)$, slope = undefined

54) through: $(-2, 3)$, slope $= -3$

55) through: $(-1, 4)$, slope $= -3$

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

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

58) through: $(4, 3)$, slope $= 6$

59) through: $(4, 4)$, slope $= 1$

60) through: $(-1, 1)$, slope $= -\frac{1}{2}$

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

61) through: $(-3, 5)$ and $(0, 5)$

62) through: $(2, -3)$ and $(2, -1)$

63) through: $(5, 2)$ and $(4, -1)$

64) through: $(-5, -5)$ and $(-5, 0)$

65) through: $(-5, -2)$ and $(-2, 3)$

66) through: $(-2, 4)$ and $(0, -5)$

67) through: $(0, 0)$ and $(-4, 0)$

68) through: $(0, -5)$ and $(1, -1)$

69) through: $(3, -5)$ and $(-1, 3)$

70) through: $(3, -2)$ and $(0, 4)$

71) through: $(2, -3)$ and $(5, -1)$

72) through: $(-4, -3)$ and $(0, 3)$

73) through: $(-5, -1)$ and $(4, -3)$

74) through: $(4, 4)$ and $(5, 2)$

75) through: $(0, 5)$ and $(0, 3)$

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

77) through: $(3, -3)$ and $(0, -2)$

78) through: $(-4, -3)$ and $(1, -1)$

79) through: $(0, -1)$ and $(-1, 1)$

80) through: $(-4, 1)$ and $(3, 3)$

Write the standard form of the equation of the line through the given points.

81) through: $(0, 3)$ and $(-2, 1)$

82) through: $(5, -3)$ and $(2, -1)$

83) through: $(0, 3)$ and $(5, 0)$

84) through: $(-5, -1)$ and $(-5, -5)$

85) through: $(0, -4)$ and $(-4, -5)$

86) through: $(1, 0)$ and $(0, -5)$

87) through: $(0, 1)$ and $(-1, 3)$

88) through: $(-2, -3)$ and $(-5, 1)$

89) through: $(4, -1)$ and $(-3, 4)$

90) through: $(0, 2)$ and $(-5, -4)$

91) through: $(3, -2)$ and $(-4, 2)$

92) through: $(1, 5)$ and $(4, 4)$

93) through: $(4, -5)$ and $(0, 2)$

94) through: $(0, -2)$ and $(-1, -1)$

95) through: $(-1, 0)$ and $(0, 4)$

96) through: $(-5, 0)$ and $(-3, 2)$

97) through: $(-1, -5)$ and $(-1, 2)$

98) through: $(-5, -5)$ and $(-2, 4)$

99) through: $(3, 3)$ and $(0, 4)$

100) through: $(3, 4)$ and $(0, 5)$

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

101) through: $(-3, -1)$ and $(-2, -4)$

102) through: $(-3, 2)$ and $(-4, 1)$

103) through: $(5, 4)$ and $(0, 4)$

104) through: $(-4, 2)$ and $(5, -1)$

105) through: $(0, -1)$ and $(5, -2)$

106) through: $(-1, -1)$ and $(4, 5)$

107) through: $(1, 3)$ and $(-2, 5)$

108) through: $(-5, 4)$ and $(-3, 0)$

109) through: $(3, -2)$ and $(3, 2)$

110) through: $(-5, -3)$ and $(0, 1)$

111) through: $(3, 2)$ and $(0, 0)$

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

113) through: $(-2, 1)$ and $(-2, -1)$

114) through: $(2, -4)$ and $(0, 4)$

115) through: $(0, 0)$ and $(2, -1)$

116) through: $(0, 3)$ and $(-3, 2)$

117) through: $(0, -1)$ and $(-1, -4)$

118) through: $(4, 2)$ and $(0, 2)$

119) through: $(3, 1)$ and $(1, 0)$

120) through: $(0, 4)$ and $(1, 2)$

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

121) through: $(3, -2)$, parallel to $y = -\frac{2}{3}x - 4$

122) through: $(-2, -4)$, parallel to $y = 2x + 4$

123) through: $(1, -2)$, parallel to $y = -7x - 5$

124) through: $(-1, 2)$, parallel to $y = -2$

125) through: $(-5, 3)$, parallel to $y = -\frac{1}{4}x + 4$

126) through: $(-2, 3)$, parallel to $y = -x - 5$

127) through: $(3, 0)$, parallel to $y = -x - 4$

128) through: $(2, 3)$, parallel to $y = \frac{7}{2}x + 2$

129) through: $(-5, 1)$, parallel to $y = \frac{1}{6}x - 2$

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

131) through: $(0, -5)$, parallel to $y = 4$

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

133) through: $(-2, 1)$, parallel to $y = x - 5$

134) through: $(2, -3)$, parallel to $y = -4x + 1$

135) through: $(-4, -2)$, parallel to $y = \frac{7}{4}x$

136) through: $(-1, 2)$, parallel to $y = -3x$

137) through: $(1, 1)$, parallel to $y = 2x - 4$

138) through: $(2, -4)$, parallel to $y = -\frac{1}{3}x - 4$

139) through: $(3, 4)$, parallel to $x = 0$

140) through: $(-1, -4)$, parallel to $y = 2x - 5$

141) through: $(-1, 5)$, parallel to $y = -x - 4$

142) through: $(5, -3)$, parallel to $y = -\frac{7}{5}x - 4$

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

144) through: $(-4, 2)$, parallel to $y = -\frac{4}{5}x - 3$

145) through: $(3, -1)$, parallel to $y = -2x - 4$

146) through: $(1, 2)$, parallel to $y = 3x + 1$

147) through: $(-1, -4)$, parallel to $y = 8x - 1$

148) through: $(-3, 1)$, parallel to $y = -2x + 4$

149) through: $(0, 5)$, parallel to $y = -x - 1$

150) through: $(1, 3)$, parallel to $y = 7x + 4$

151) through: $(0, -4)$, perp. to $y = 4$

152) through: $(-1, 3)$, perp. to $y = \frac{1}{3}x - 5$

153) through: $(-4, 4)$, perp. to $y = -4x + 2$

154) through: $(4, 5)$, perp. to $y = -\frac{8}{3}x + 5$

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

156) through: $(-1, 5)$, perp. to $y = \frac{1}{6}x + 5$

157) through: $(3, 1)$, perp. to $y = 3x - 1$

158) through: $(-3, 1)$, perp. to $y = \frac{3}{4}x + 1$

159) through: $(1, 2)$, perp. to $y = 3x + 1$

160) through: $(2, 0)$, perp. to $y = -5$

161) through: $(-5, 2)$, perp. to $y = 2x + 2$

162) through: $(-3, -3)$, perp. to $y = \frac{2}{3}x + 3$

163) through: $(-3, -1)$, perp. to $y = -x - 3$

164) through: $(-3, -3)$, perp. to $y = -2x$

165) through: $(3, 2)$, perp. to $y = -\frac{1}{2}x + 5$

166) through: $(2, 5)$, perp. to $y = -\frac{1}{2}x - 5$

167) through: $(-4, 1)$, perp. to $y = \frac{4}{3}x + 2$

168) through: $(-5, 5)$, perp. to $y = \frac{5}{7}x - 1$

169) through: $(-1, -3)$, perp. to $y = -\frac{1}{6}x + 3$

170) through: $(3, -3)$, perp. to $y = x - 1$

171) through: $(-4, -3)$, perp. to $y = -x - 1$

172) through: $(1, 3)$, perp. to $x = 0$

173) through: $(4, -1)$, perp. to $y = -4x - 3$

174) through: $(-5, 5)$, perp. to $y = \frac{5}{8}x - 1$

175) through: $(3, -3)$, perp. to $x = 0$

176) through: $(1, -4)$, perp. to $y = 4x - 4$

177) through: $(0, 0)$, perp. to $x = 0$

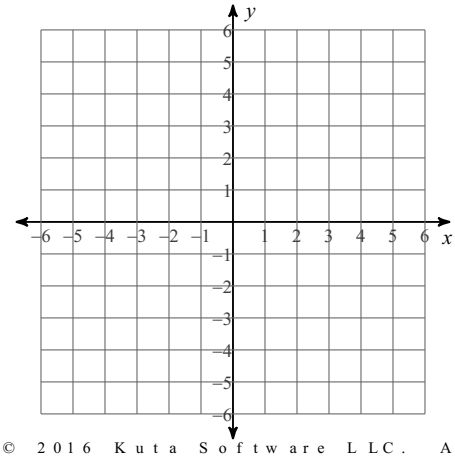
178) through: $(3, -4)$, perp. to $y = \frac{1}{6}x + 3$

179) through: $(2, 2)$, perp. to $y = x + 1$

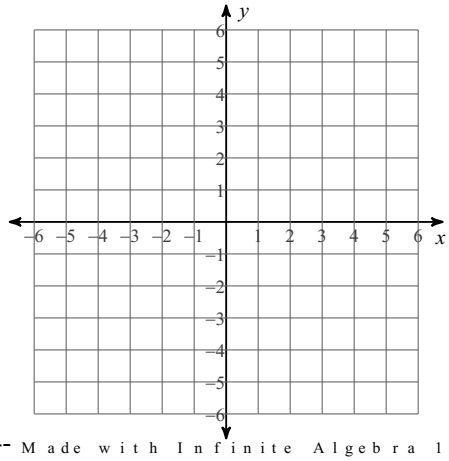
180) through: $(2, -4)$, perp. to $y = -\frac{1}{8}x - 1$

Sketch the graph of each linear inequality.

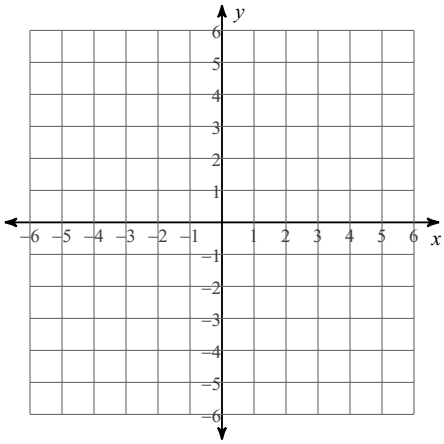
181) $y \geq -\frac{3}{4}x - 1$



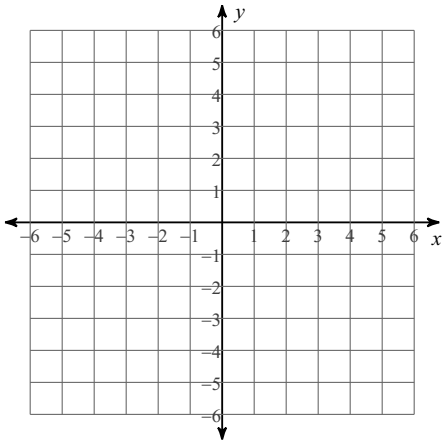
182) $y < -\frac{3}{2}x - 2$



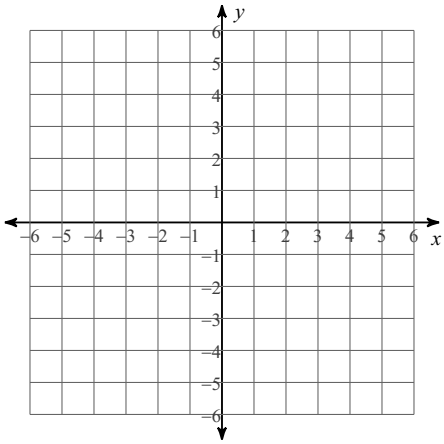
183) $y < 4$



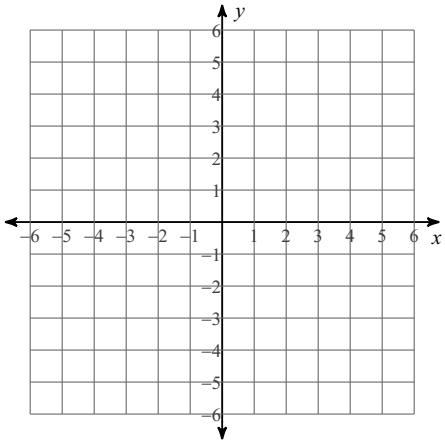
184) $y \geq x$



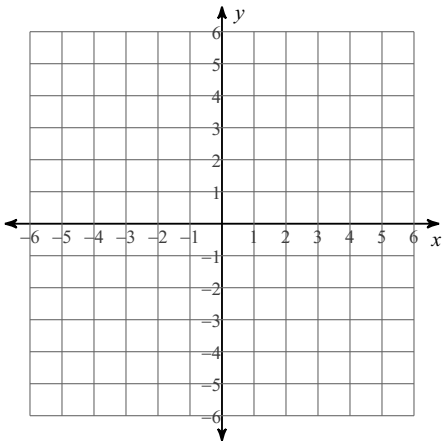
185) $x > -3$



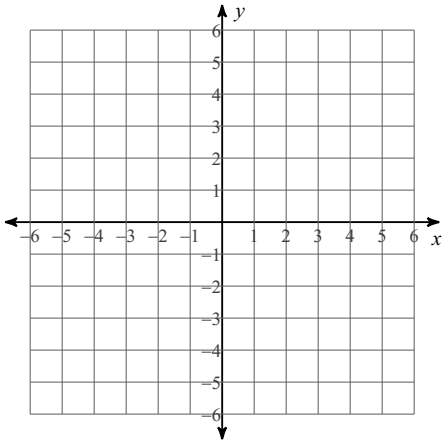
186) $y > \frac{5}{4}x + 2$



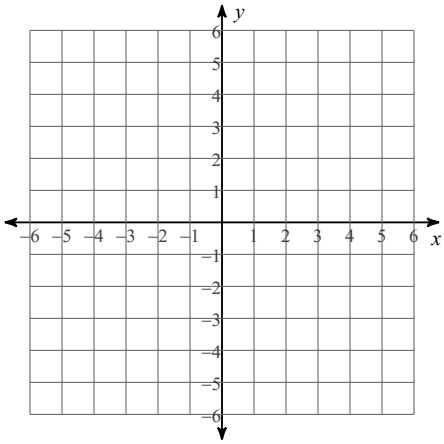
187) $y < -\frac{4}{5}x - 3$



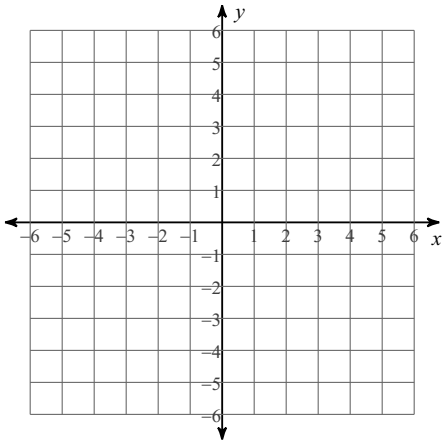
188) $y \geq x - 5$



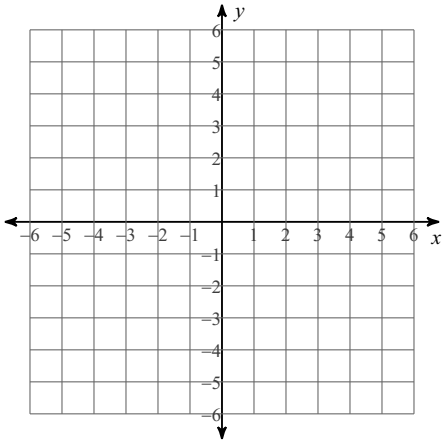
189) $y \leq 2x + 1$



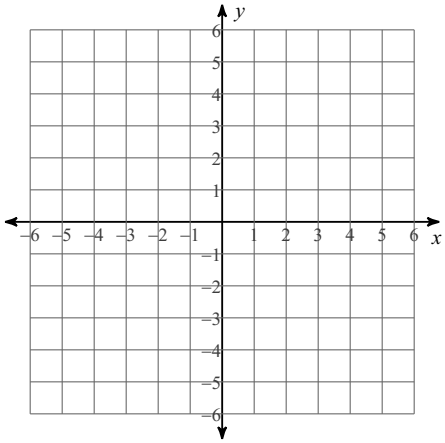
190) $y \geq 2x + 5$



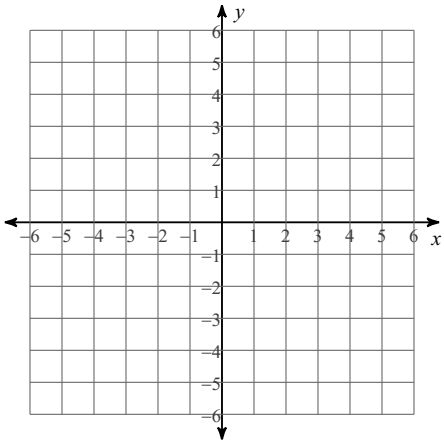
191) $x - y > -1$



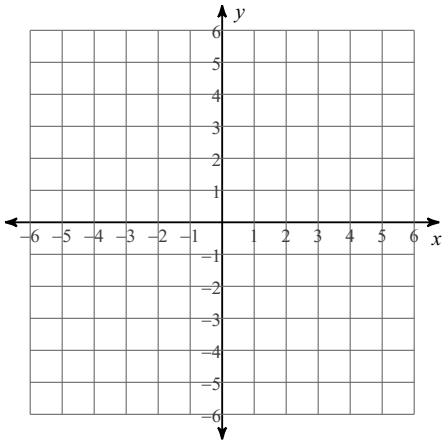
192) $7x - y \geq -3$



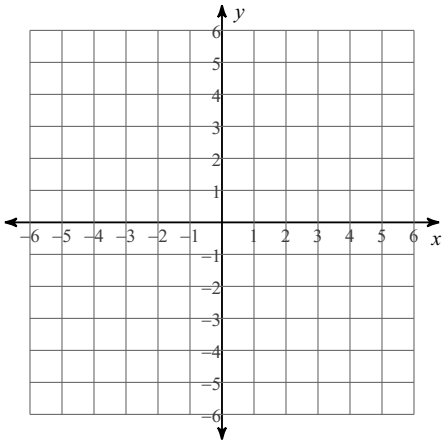
193) $x < 4$



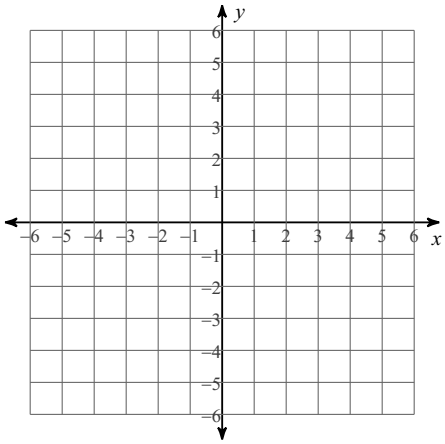
194) $2x + 3y \leq -6$



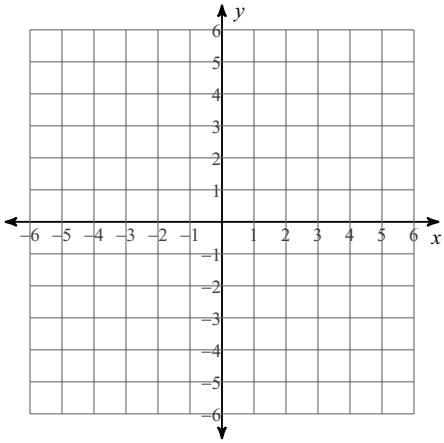
195) $x - 4y < 8$



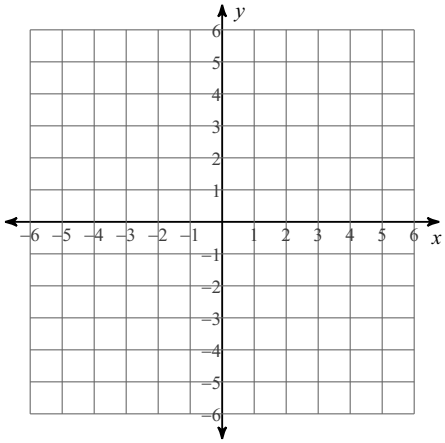
196) $3x - 2y \geq 0$



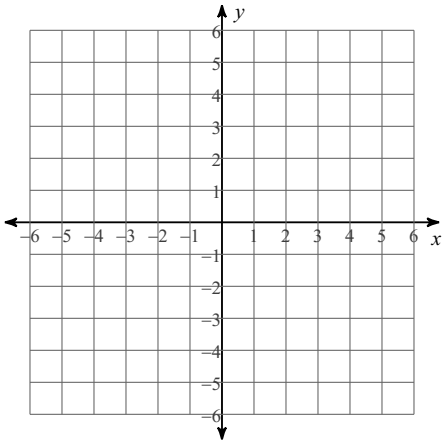
197) $3x + 2y \leq -6$



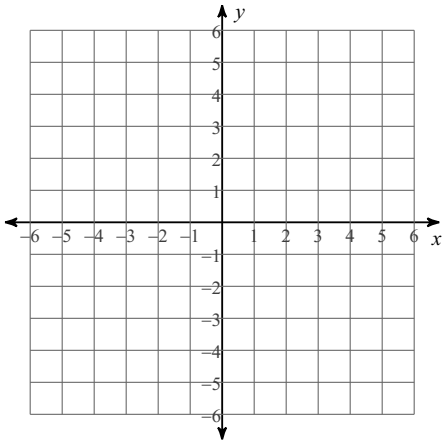
198) $6x - y < -4$



199) $6x - 5y < 15$



200) $6x - 5y < -15$



Answers to LINEAR EQUATIONS & INEQUALITIES

1) $y = -\frac{1}{2}x + 2$
2) $y = 2$
3) $y = 6x + 3$
4) $y = -\frac{2}{5}x - 1$
5) $y = -\frac{7}{2}x + \frac{17}{2}$
6) $y = -\frac{1}{2}x - \frac{3}{2}$
7) $x = 0$
8) $y = x - 5$
9) $y = -\frac{1}{7}x + \frac{11}{7}$
10) $y = -\frac{1}{3}x + 1$
11) $y = -x + 1$
12) $y = -x$
13) $y = 7x + 2$
14) $y = x + 2$
15) $y = -\frac{3}{5}x - \frac{6}{5}$
16) $y = -x + 5$
17) $y = -\frac{5}{3}x$
18) $x = 5$
19) $y = \frac{1}{2}x - 4$
20) $y = -\frac{2}{5}x - 3$
21) $4x + 7y = 6$
22) $3x + 4y = -4$
23) $x - 3y = 3$
24) $3x + y = -3$
25) $2x + 5y = 0$
26) $x - y = 0$
27) $4x + y = 3$
28) $8x + 3y = 12$
29) $7x - 3y = -12$
30) $2x + y = 3$
31) $2x - 5y = -15$
32) $2x + y = 4$
33) $8x - y = 4$
34) $x = 0$
35) $y = -2$
36) $2x + 3y = 0$
37) $x + 5y = -15$
38) $4x - y = -3$
39) $x + y = 0$
40) $x - 2y = -6$
41) $y + 4 = \frac{2}{3}(x + 3)$
42) $y - 1 = \frac{2}{3}(x - 4)$
43) $y + 1 = \frac{1}{3}(x - 3)$
44) $y - 5 = -(x + 3)$
45) $y - 3 = -\frac{8}{5}(x + 1)$
46) $y + 5 = -\frac{6}{5}(x - 5)$
47) $y + 2 = -\frac{5}{3}(x - 3)$
48) $y + 3 = -\frac{3}{2}(x - 4)$
49) $y - 2 = -\frac{3}{4}(x - 4)$
50) $y + 4 = -\frac{7}{5}(x - 5)$
51) $y + 2 = -\frac{7}{4}(x - 4)$
52) $y - 4 = 0$
53) $0 = x - 1$
54) $y - 3 = -3(x + 2)$
55) $y - 4 = -3(x + 1)$
56) $y - 3 = \frac{2}{5}(x + 5)$
57) $y + 3 = \frac{4}{3}(x + 3)$
58) $y - 3 = 6(x - 4)$
59) $y - 4 = x - 4$
60) $y - 1 = -\frac{1}{2}(x + 1)$
61) $y = 5$
62) $x = 2$
63) $y = 3x - 13$
64) $x = -5$
65) $y = \frac{5}{3}x + \frac{19}{3}$
66) $y = -\frac{9}{2}x - 5$
67) $y = 0$
68) $y = 4x - 5$
69) $y = -2x + 1$
70) $y = -2x + 4$
71) $y = \frac{2}{3}x - \frac{13}{3}$
72) $y = \frac{3}{2}x + 3$
73) $y = -\frac{2}{9}x - \frac{19}{9}$
74) $y = -2x + 12$
75) $x = 0$
76) $y = \frac{5}{2}x - 4$
77) $y = -\frac{1}{3}x - 2$
78) $y = \frac{2}{5}x - \frac{7}{5}$
79) $y = -2x - 1$
80) $y = \frac{2}{7}x + \frac{15}{7}$
81) $x - y = -3$
82) $2x + 3y = 1$
83) $3x + 5y = 15$
84) $x = -5$
85) $x - 4y = 16$
86) $5x - y = 5$
87) $2x + y = 1$
88) $4x + 3y = -17$
89) $5x + 7y = 13$
90) $6x - 5y = -10$
91) $4x + 7y = -2$
92) $x + 3y = 16$
93) $7x + 4y = 8$
94) $x + y = -2$
95) $4x - y = -4$
96) $x - y = -5$
97) $x = -1$
98) $3x - y = -10$
99) $x + 3y = 12$
100) $x + 3y = 15$
101) $y + 1 = -3(x + 3)$
102) $y - 2 = x + 3$
103) $y - 4 = 0$
104) $y - 2 = -\frac{1}{3}(x + 4)$
105) $y + 1 = -\frac{1}{5}x$
106) $y + 1 = \frac{6}{5}(x + 1)$
107) $y - 3 = -\frac{2}{3}(x - 1)$
108) $y - 4 = -2(x + 5)$
109) $0 = x - 3$

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

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

112) $y-2=\frac{3}{4}x$

113) $0=x+2$

114) $y+4=-4(x-2)$

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

116) $y-3=\frac{1}{3}x$

117) $y+1=3x$

118) $y-2=0$

119) $y-1=\frac{1}{2}(x-3)$

120) $y-4=-2x$

121) $y+2=-\frac{2}{3}(x-3)$

122) $y+4=2(x+2)$

123) $y+2=-7(x-1)$

124) $y-2=0$

125) $y-3=-\frac{1}{4}(x+5)$

126) $y-3=-(x+2)$

127) $y=-(x-3)$

128) $y-3=\frac{7}{2}(x-2)$

129) $y-1=\frac{1}{6}(x+5)$

130) $y+3=\frac{1}{2}(x-2)$

131) $y+5=0$

132) $y=\frac{5}{2}(x+2)$

133) $y-1=x+2$

134) $y+3=-4(x-2)$

135) $y+2=\frac{7}{4}(x+4)$

136) $y-2=-3(x+1)$

137) $y-1=2(x-1)$

138) $y+4=-\frac{1}{3}(x-2)$

139) $0=x-3$

140) $y+4=2(x+1)$

141) $y-5=-(x+1)$

142) $y+3=-\frac{7}{5}(x-5)$

143) $y-2=\frac{1}{5}(x+4)$

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

145) $y+1=-2(x-3)$

146) $y-2=3(x-1)$

147) $y+4=8(x+1)$

148) $y-1=-2(x+3)$

149) $y-5=-x$

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

151) $0=x$

152) $y-3=-3(x+1)$

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

154) $y-5=\frac{3}{8}(x-4)$

155) $y+1=-\frac{1}{5}(x-5)$

156) $y-5=-6(x+1)$

157) $y-1=-\frac{1}{3}(x-3)$

158) $y-1=-\frac{4}{3}(x+3)$

159) $y-2=-\frac{1}{3}(x-1)$

160) $0=x-2$

161) $y-2=-\frac{1}{2}(x+5)$

162) $y+3=-\frac{3}{2}(x+3)$

163) $y+1=x+3$

164) $y+3=\frac{1}{2}(x+3)$

165) $y-2=2(x-3)$

166) $y-5=2(x-2)$

167) $y-1=-\frac{3}{4}(x+4)$

168) $y-5=-\frac{7}{5}(x+5)$

169) $y+3=6(x+1)$

170) $y+3=-(x-3)$

171) $y+3=x+4$

172) $y-3=0$

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

174) $y-5=-\frac{8}{5}(x+5)$

175) $y+3=0$

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

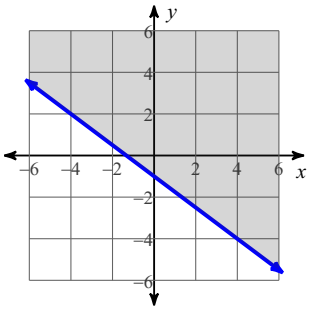
177) $y=0$

178) $y+4=-6(x-3)$

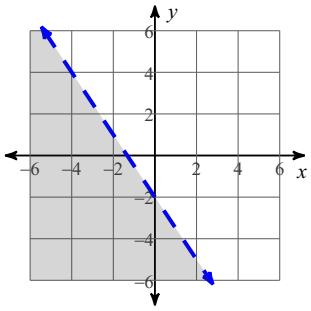
179) $y-2=-(x-2)$

180) $y+4=8(x-2)$

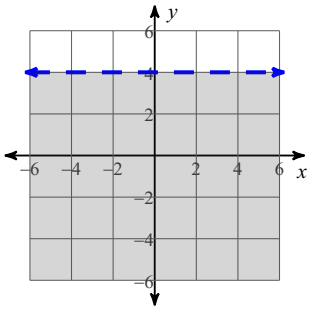
181)



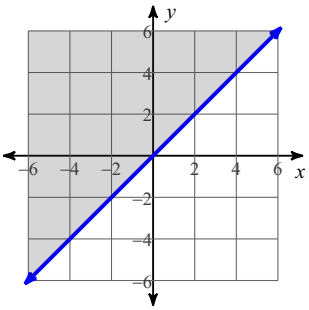
182)



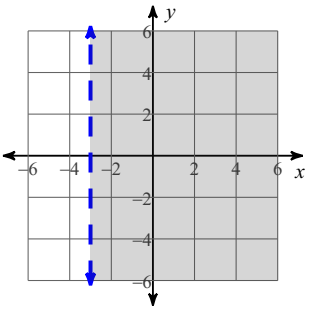
183)



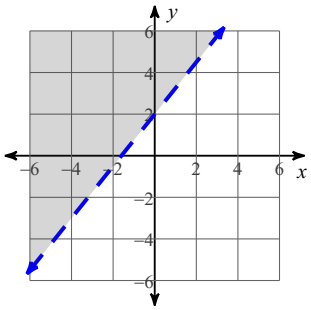
184)



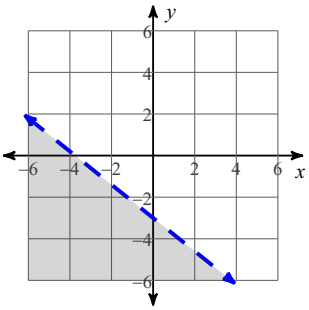
185)



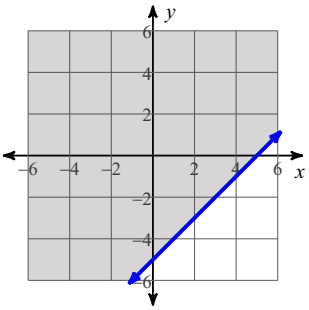
186)



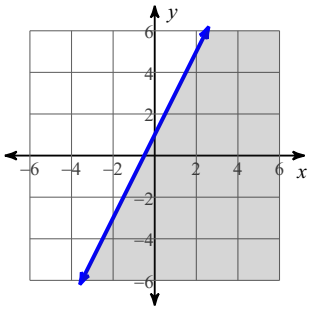
187)



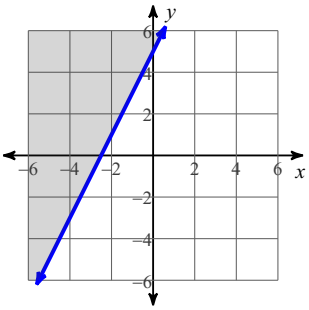
188)



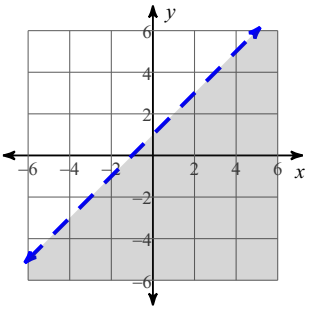
189)



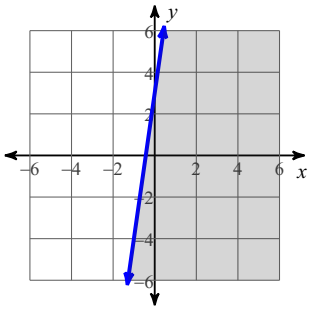
190)



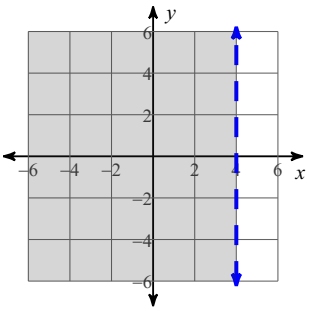
191)



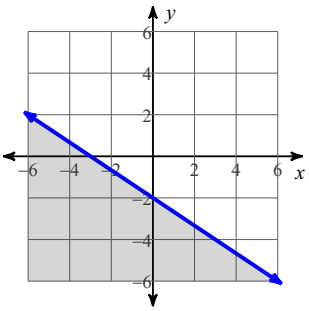
192)



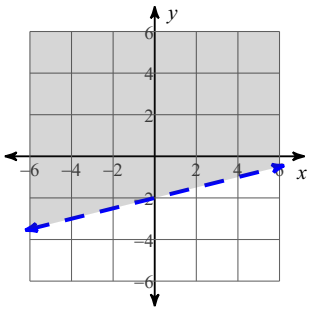
193)



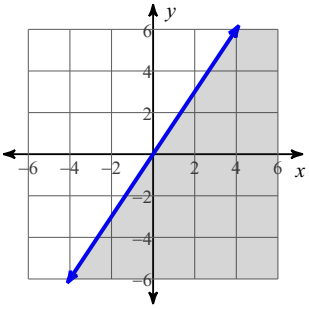
194)



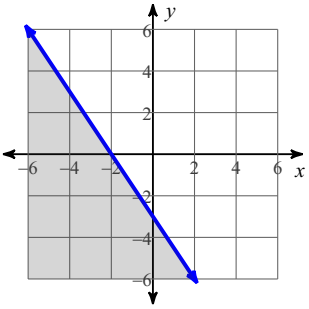
195)



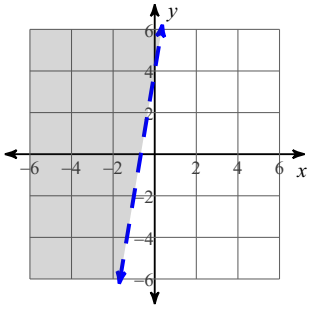
196)



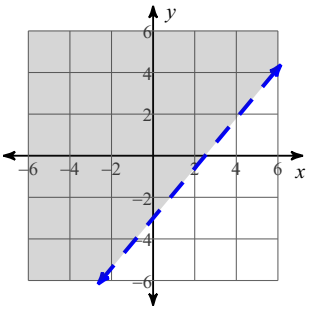
197)



198)



199)



200)