CHAPTER 7 EXERCISES

Find the length of the segment between two points.

1. (5, 7) and (5, –3)
2. (–5, 4) and (3, 4)
3. (–2, 7) and (–2, 1)
4. (–6, –1) and (–3, –1)
5. (6, –8) and (6, –7)
6. (1, 1) and (1, 9)

Identify whether each ordered pair of number is a solution of the equation.

7. $x+2y=3$, (1, 1)
8. $x+2y=3$, (–1, 2)
9. $x+2y=3$, (3, 1)
10. $2x-y=5$, (2, 1)
11. $2x-y=5$, (2, –1)
12. $2x-y=5$, $(\frac{1}{2}, -4)$
13. $2a-4b=1$, $(3, \frac{5}{4})$
14. $2a-4b=1$, $(-2, \frac{5}{3})$
15. $y=\frac{2}{3}x-4$, (3, –2)

Write each of the linear equations in standard form $ax+by=c$.

16. $2x=y-5$
17. $y=-2x+5$
18. $-y=2x-5$
19. $-y=-2x+5$
20. $4x=5y+7$
21. $3x-9=8y$
22. $6y+7=2x$
23. $\frac{2}{3}x=-2y+1$

Solve each linear equation for y in terms of x.

24. $2x+y=4$
25. $-2x+y=4$
26. $2x-y=4$
27. $y-4=2x$
28. $4x+2y=5$
29. $4x-2y=5$
30. $5x-3y=6$
31. $3x+5y=6$

Find the value for each function.

$f(x)=2x-7$	32) $f(1)$	33) $f(0)$	34) $f(-1)$	35) $f(2)$
$f(x)=7-2x$	36) $f(1)$	37) $f(0)$	38) $f(2)$	39) $f(-\frac{5}{4})$
$p(n)=n^2-n+1$	40) $p(2)$	41) $p(0)$	42) $p(5)$	43) $p(\frac{1}{2})$
$f: x \to 5x-4$	44) $f(2)$	45) $f(-2)$	46) $f(\frac{1}{5})$	47) $f(-1\frac{1}{5})$

Given the domain of each function, find the range.

48. $f(x)=3x-7$, D = {0, 1, 2, 3, 4}
49. $f(x)=4x-2$, D = {–2, –1, 0, 1, 2}
50. $f(x)=x^2-2$, D = {–3, –1, 0, 1, 3}
51. $f(x)=2x^2-2$, D = {–2, 0, 1, 2}
52. $f(x)=|x|-4$, D = {–5, –1, 0, 3}
53. $f(x)=4-|x|$, D = {–5, –1, 0, 3}

Find the domain and range of each relation (ordered pairs). Determine whether or not it is a function.

54. {(0, –2), (1, –1), (2, 1), (3, 4)}
55. {(–2, 1), (–2, 3), (0, 2), (2, 1)}
56. {(–2, –2), (–1, 1), (1, 0), (1, 2)}
57. {(–3, 1), (–1, 3), (2, –3), (3, –2)}
58. {(0, 2), (1, 1), (2, 0), (3, –1), (4, –2)}
59. {(1, 2), (2, 3), (8, 9)}
60. {(1, 2), (–4, 7), (1, –2)}

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Find the x-intercept and y-intercept. Use the x-intercept and y-intercept to graph each equation.

61. $y = x - 3$ **62.** $y = 3 - x$ **63.** $x + y = -3$ **64.** $y = 2x + 2$

65. $x + 2y = 6$ **66.** $x - 2y = 6$ **67.** $2x - 3y = 12$ **68.** $2x + 3y = 12$

69. $y = -2$ **70.** $x = 1$ **71.** $y = 2x$ **72.** $y = -2x$

73. $\frac{2}{3}x - y = 4$ **74.** $\frac{1}{2}x + \frac{1}{3}y = 4$ **75.** $\frac{1}{2}x - \frac{2}{3}y = 4$

Find the slope of each line with its rise and run.

76. rise 5, run 2 **77.** rise 2, run -5 **78.** rise 0, run 9 **79.** rise 9, run 0

80. rise 6, run $\frac{1}{2}$ **81.** rise $-\frac{2}{3}$, run $\frac{1}{6}$ **82.** rise $1\frac{1}{2}$, run $-\frac{5}{4}$ **83.** rise 2.5, run 0.5

Find the slope of each line containing the given two points.

84. (3, 5) and (5, 3) **85.** (-3, 5) and (3, -5) **86.** (-3, -5) and (3, 5)

87. (0, -4) and (0, 5) **88.** (-4, 0) and (5, 0) **89.** (-8, 7) and (-8, -7)

90. (2, $\frac{2}{3}$) and (4, 2) **91.** ($\frac{1}{2}$, 2) and (2, -4) **92.** ($\frac{2}{5}$, $-\frac{3}{5}$) and ($\frac{1}{5}$, $\frac{1}{5}$)

93. (-1.2, -1.5) and (1.3, 3) **94.** (0, 0) and (4.5, 7.2) **95.** ($\frac{1}{2}$, $\frac{1}{2}$) and ($\frac{2}{3}$, $-\frac{1}{3}$)

Find the slope (m) and y-intercept (b) of each line.

96. $y = -4x + 9$ **97.** $y = 9 + 4x$ **98.** $y = \frac{4}{5}x - 15$ **99.** $y = -\frac{4}{5}x + 15$

100. $8x + y = 10$ **101.** $8x - y = 10$ **102.** $y = 8x$ **103.** $y = -8$

104. $3x + 6y = 8$ **105.** $3x - 6y = -8$ **106.** $\frac{1}{2}y - 4x = 7$ **107.** $-5y + 10x = 7$

Find the equation in standard form $ax + by = c$ of each line described.

108. slope 5, y-intercept 7 **109.** slope -4, y-intercept -2

110. slope $\frac{3}{2}$, y-intercept 12 **111.** slope $-\frac{4}{5}$, y-intercept $-\frac{2}{3}$

112. slope 7, passes through (2, 3) **113.** slope $-\frac{1}{2}$, passes through (4, -5)

114. slope $\frac{3}{4}$, passes through (-2, -1) **115.** slope 0, passes through (-7, 9)

116. slope undefined, (5, 1) **117.** passes through (2, -3) and (6, 5)

118. passes through (1, 7) and (-6, -7) **119.** passes through ($\frac{2}{3}$, 4) and (1, -5)

120. passes through (3, -1) and ($\frac{1}{3}$, 3)

Tell whether or not they are parallel, perpendicular, or neither.

121. $5x - 6y = 4$, $6x + 5y = 7$ **122.** $2x - 4y = 11$, $4x + 8y = 15$

123. $2x - 4y = 13$, $4x - 8y = 19$ **124.** $4x - 8y = 21$, $4x + 2y = 25$

125. If y varies directly as x, and $y = 48$ when $x = 4$. Find y when $x = \frac{2}{3}$.

126. If n varies directly as m, and $n = 210$ when $m = 21$. Find n when $m = 5\frac{1}{2}$.

127. If (x_1, y_1) and (x_2, y_2) are ordered pairs of the same variation, find y_2.

$x_1 = \frac{5}{8}$, $y_1 = \frac{1}{4}$, $x_2 = \frac{2}{3}$, $y_2 = ?$