

A#25 ① p. 314-315 # 13-16, 19-24, 40-41

Key

② p. 321-323 # 1-5, 8, 12-14, 17-25 odd, 32, 36

① p. 314-315 # 13-16, 19-24, 40-41

13. $(0, 5)$ $m = -2$

Slope-Int: $y = -2x + 5$

Standard Form: $2x + y = 5$

14. $(-8, 0)$ $m = -4$

$y = mx + b$
 $0 = -4(-8) + b$

$0 = 32 + b$

$b = -32$

Slope-Int: $y = -4x + (-32)$

Standard: $4x + y = -32$

15. $(-4, -4)$ $m = -\frac{3}{2}$

$y = mx + b$
 $-4 = (-\frac{3}{2})(-4) + b$

$-4 = 6 + b$

$b = -10$

Slope-Int: $y = -\frac{3}{2}x + (-10)$

$\frac{3}{2}x + y = -10$

16. $(-6, -10)$ $m = \frac{1}{6}$

$y = mx + b$
 $-10 = \frac{1}{6}(-6) + b$

$-10 = -1 + b$

$b = -9$

Slope-Int: $y = \frac{1}{6}x + (-9)$

$-\frac{1}{6}x + y = -9$

Standard: $x + (-6y) = 54$

19. $(0, -1)$ $(-6, -9)$

$m = \frac{\Delta y}{\Delta x} = \frac{-9 - (-1)}{-6 - 0} = \frac{-8}{-6} = \frac{4}{3}$

Slope-Int: $y = \frac{4}{3}x + (-1)$

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

Standard: $-4x + 3y = -3$

20. $(3, 9)$ $(1, 1)$

$m = \frac{\Delta y}{\Delta x} = \frac{9 - 1}{3 - 1} = \frac{8}{2} = 4$

$y = mx + b$

$1 = 4(1) + b$

$1 = 4 + b$

$b = -3$

Slope-Int: $y = 4x + (-3)$

Standard: $-4x + y = -3$

21. $(10, 6)$ $(-12, -5)$

$m = \frac{\Delta y}{\Delta x} = \frac{6 - (-5)}{10 - (-12)} = \frac{11}{22} = \frac{1}{2}$

$y = mx + b$

$6 = \frac{1}{2}(10) + b$

$6 = 5 + b$

$b = 1$

Slope-Int: $y = \frac{1}{2}x + 1$

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

Standard: $-x + 2y = 2$

22. $(-6, -2)$ $(-1, -2)$

$m = \frac{\Delta y}{\Delta x} = \frac{-2 - (-2)}{-6 - (-1)} = \frac{0}{-5} = 0$

$m = 0$ [Horizontal Line]

Slope-Int: $y = -2$

Standard: $y = -2$

23. $(3, 2)$

Vertical: $x = 3$

Horizontal: $y = 2$

24. $(-5, -3)$

Vertical: $x = -5$

Horizontal: $y = -3$

A #25 continued

Key

p. 315 #40-41

40. $N = \# \text{ of nights}$
 $T = \# \text{ of treats}$

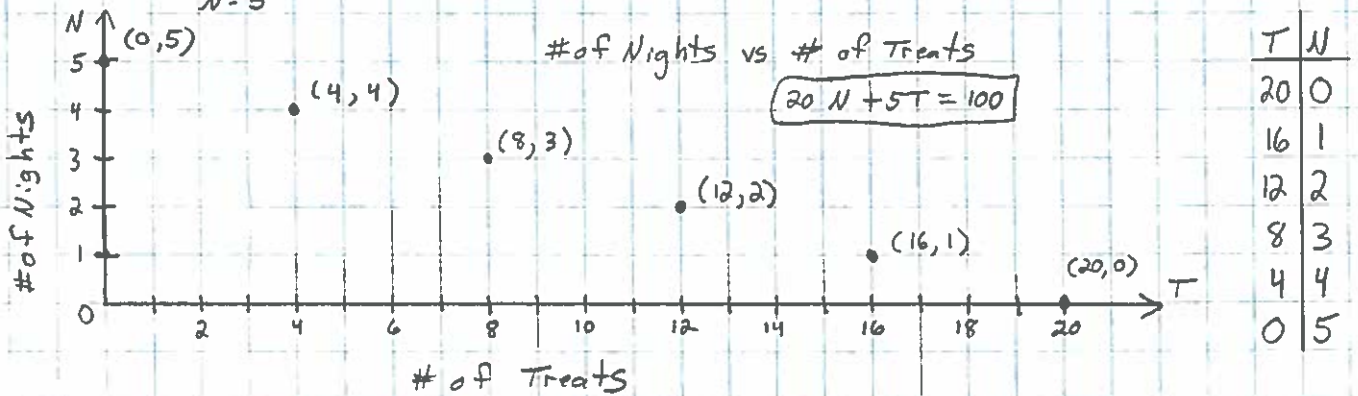
$$\left(\frac{\text{cost per night}}{\text{treat}}\right) (\# \text{ of nights}) + \left(\frac{\text{cost per treat}}{\text{treat}}\right) (\# \text{ of treats}) = \text{Total Cost}$$

$$20N + 5T = 100$$

(T, N)

$N=0$ $5T=100$ $(20, 0)$ Your dog gets 20 treats and stays 0 nights
 $T=20$

$T=0$ $20N=100$ $(0, 5)$ Your dog gets 0 treats and stays 5 nights
 $N=5$



41. $L = \# \text{ of large rafts}$
 $S = \# \text{ of small rafts}$

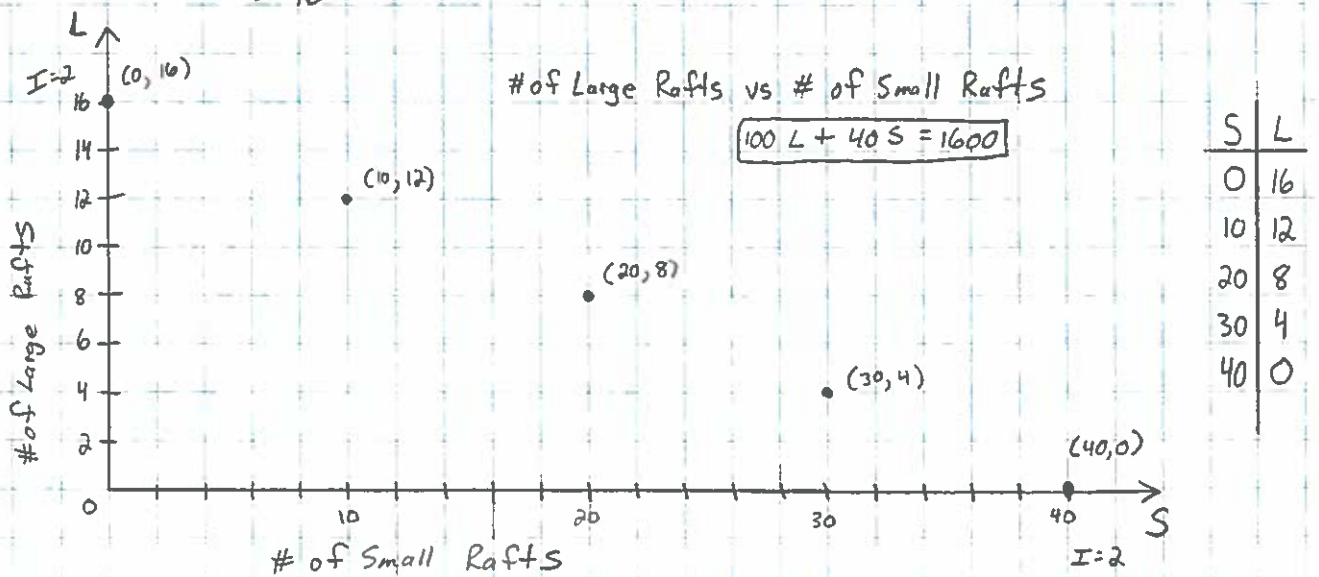
$$\left(\frac{\text{cost per large raft}}{\text{small raft}}\right) (\# \text{ of large rafts}) + \left(\frac{\text{cost per small raft}}{\text{small raft}}\right) (\# \text{ of small rafts}) = \text{Total Cost}$$

$$100L + 40S = 1600$$

(S, L)

$L=0$ $40S=1600$ $(40, 0)$ You rent 40 small rafts and 0 large rafts.
 $S=40$

$S=0$ $100L=1600$ $(0, 16)$ You rent 0 small rafts and 16 large rafts.
 $L=16$



A#25 Continued

Key

2 p. 321-323 #1-5, 8, 12-14, 17-25 odd, 32, 36

1. Two lines in a plane are perpendicular if they intersect to form a right angle.

2. Perpendicular lines have opposite reciprocal slopes.

3. $(-1, 3)$ Parallel to $y = 2x + 2$ 4. $(6, 8)$ Parallel to $y = \frac{-5}{2}x + 10$

$$m = 2 \quad y = mx + b$$

$$3 = 2(-1) + b$$

$$3 = -2 + b$$

$$b = 5$$

$$y = 2x + 5$$

$$m = \frac{-5}{2} \quad y = mx + b$$

$$8 = \frac{-5}{2}(6) + b$$

$$8 = -15 + b$$

$$b = 23$$

$$y = \frac{-5}{2}x + 23$$

5. $(5, -1)$ Parallel to $y = \frac{3}{5}x - 3$

$$m = \frac{3}{5} \quad y = mx + b$$

$$-1 = \left(\frac{3}{5}\right)(5) + b$$

$$-1 = -3 + b$$

$$b = 2$$

$$y = \frac{3}{5}x + 2$$

8. $(18, 2)$ Parallel to $3y = x - 12$

$$m = \frac{1}{3} \quad y = mx + b \quad y = \frac{1}{3}x + (-4)$$

$$2 = \frac{1}{3}(18) + b$$

$$2 = 6 + b$$

$$b = -4$$

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

12. Line a: $y = 4x - 2$ ($m = 4$) 13. Line a: $y = \frac{3}{5}x + 1$ ($m = \frac{3}{5}$)

Line b: $y = -\frac{1}{4}x$ ($m = -\frac{1}{4}$)

Line b: $5y = 3x - 2 \rightarrow y = \frac{3}{5}x + \left(-\frac{2}{5}\right)$ ($m = \frac{3}{5}$)

Line c: $y = -4x + 1$ ($m = -4$)

Line c: $10x - 6y = -4 \rightarrow y = \frac{5}{3}x + \frac{2}{3}$ ($m = \frac{5}{3}$)

a and b are perpendicular

a and b are Parallel [They have the same slope.]

[4 and $-\frac{1}{4}$ are opposite reciprocals]14. Line a: $y = 3x + 6$ ($m = 3$)

Line b: $3x + y = 6 \rightarrow y = -3x + 6$ ($m = -3$)

Line c: $3y = 2x + 18 \rightarrow y = \frac{2}{3}x + 6$ ($m = \frac{2}{3}$)

No lines are parallel

or perpendicular.

A#25 continued

Key

p. 321-323 #17-25 odd, 32, 36

17. line 1: $(-2, 1)$ $(0, 3)$ $m = \frac{\Delta y}{\Delta x} = \frac{2}{2} = 1$
 line 2: $(1, 3)$ $(4, 1)$ $m = \frac{\Delta y}{\Delta x} = \frac{-2}{3} = -\frac{2}{3}$
 line 3: $(4, 1)$ $(6, 4)$ $m = \frac{\Delta y}{\Delta x} = \frac{3}{2}$

No Parallel lines.
 Lines 2 + 3 are perpendicular.
 $[-\frac{2}{3}$ and $\frac{3}{2}$ are opposite reciprocals]

19. $(-9, 2)$ Perpendicular to $y = 3x - 12$ 21. $(7, 10)$ Perpendicular to $y = \frac{1}{2}x - 9$

$m = -\frac{1}{3}$ $y = mx + b$
 $2 = \frac{1}{3}(-9) + b$ $m = -2$ $y = mx + b$
 $2 = 3 + b$ $10 = -2(7) + b$
 $b = -1$ $10 = -14 + b$
 $b = 24$

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

$y = -2x + 24$

23. $(-4, -1)$ Perpendicular to $y = \frac{4}{3}x + 6$ 25. $(-5, 2)$ Perpendicular to $y + 3 = 2x$

$m = -\frac{3}{4}$ $y = mx + b$
 $-1 = (-\frac{3}{4})(-4) + b$ $m = -\frac{1}{2}$ $y = mx + b$
 $-1 = 3 + b$ $2 = (-\frac{1}{2})(-5) + b$ $y = 2x + (-3)$
 $b = -4$ $\frac{4}{2} = \frac{5}{2} + b$
 $b = -\frac{1}{2}$

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

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

32. a. $(-4, 0)$ $(0, 8)$ $m = \frac{\Delta y}{\Delta x} = \frac{0-8}{-4-0} = \frac{-8}{-4} = 2$ $y = 2x + 8$
 b. $(0, 8)$ $(-4, 16)$ $m = \frac{\Delta y}{\Delta x} = \frac{8-16}{0-(-4)} = \frac{-8}{4} = -2$ $y = -2x + 8$

c. The paths not a right angle because the lines are not perpendicular. [Slopes are not opposite reciprocals.]

36. $C = \#$ of \$ [cost of membership] (m, C)

$m = \#$ of months

a. 1st 100 members $(0, 49)$ $C = 38.75m + 49$ where C is the total cost of membership after m months.
 $m = \frac{\Delta C}{\Delta m} = \38.75 per month

b. After 1st 100 members $(0, 149)$ $C = 38.75m + 149$ where C is the total cost of membership after m months.

c. These lines are parallel because they have the same slope.

d. Since the lines are parallel, the difference will always be the same. \$100