4.2.2

4-49

4-49 to 4-54

Are the points below the solution to $y = 12x + 28$?

(-1, 16) and (5, 88)

$\frac{88 - 16}{5 - -1} = \frac{72}{6}$ or 12

Slope: $\frac{72}{6}$

Is this the equation for these points?

given equation = $y = 12x + 28$

Check equation!

$88 = 12(5) + 28$

$88 = 60 + 28$

$\boxed{88 = 88}$

∴ The given equation $y = 12x + 28$ is correct.

Check the work above ↑

If you plug in each of the points, you can also check to see if the equation works.

$y = 12x + 28$ (-1, 16)

$16 = 12(-1) + 28$

$16 = -12 + 28$

$16 = 16$ ✓

$y = 12x + 28$ (5, 88)

$88 = 12(5) + 28 = 60 + 28 = 88$ ✓

Continued on back →

4-50

$y = x + 2$

$y = 2x + 1$

a. The points intersect at (3, 5)

This is the solution on the graph →

b. Equal values!

$x + 2 = 2x + 1$

$-1 \quad -1$

$x + 3 = 2x$

$-x \quad -x$

$3 = x$

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

$5 = 6 - 1$

$5 = 5$

(3, 5)

$y = 5$

4-51

a.

h = number of hotdogs

c = number of corndogs

$h = 2c - 3$

(hotdogs) (twice the # of corndogs) (three fewer) (corndogs)

b. $\$201 = 3h + 1.50c$

or: $3(2c - 3)$

continued →

4-51 continued

two equations: $h = 2c - 3$

c. $\$201 = 3h + 1.50c$

SUBSTITUTION! for h.

$\$201 = 3(2c - 3) + 1.50c$

$\$201 = 6c - 9 + 1.50c$

$+9 \quad +9$

$210 = 6c + 1.50c$

$\frac{210}{7.50} = \frac{7.50c}{7.50}$

$28 = c$

28 corndogs were sold.

4-52

a. $\frac{3}{4}$ / 1 / $\frac{4}{3}$ → $\frac{25}{12}$ or $2\frac{1}{12}$

$\frac{3}{4} \cdot x = 1$

$\left(\frac{4}{3}\right)\frac{3}{4}x = 1 \cdot \frac{4}{3} \quad x = \frac{4}{3}$

$\frac{3}{4} + \frac{4}{3} = \frac{9}{12} + \frac{16}{12} = \frac{25}{12}$

b. 2 / 6 / 3 / 5

$2 + 3 = 5$

$2 \cdot 3 = 6$

c. -5 / 5 / -1 / -6 → or $2\frac{1}{12}$

$-1 \cdot 5 = 5$

$-5 + -1 = -6$

d. 6 / -12 / 4 / -2

$6 + -2 = 4$

$6 \cdot -2 = -12$

4-53

if $a = b$ and $c = d$, then
$a + c = b + d$

example: if a & b are 2 and c & d are 3 then...

$2 + 3 = 2 + 3$

$5 = 5$

Rianna is correct, adding equal values to both sides of an equality preserves the equality

4-54

Solve and check!

a. $-(2-3x)+x=9-x$

$-2+3x+x=9-x$

$-2+4x=9-x$

$+x \quad +x$

$-2+5x=9$

$+2 \quad +2$

$\frac{5x}{5} = \frac{11}{5}$

$\boxed{x = 2.2}$

b. $\frac{6}{x+2} = \frac{3}{4}$

use logic!

$3 \cdot 2 = 6$

$4 \cdot 2 = 8$

$4 \cdot 2 = (x+2)$

$8 = x+2$

$-2 \quad -2$

$\boxed{6 = x}$

or, cross multiply!

$\frac{6}{x+2} = \frac{3}{4}$

$6(4) = 3(x+2)$

$24 = 3x + 6$

$-6 \quad -6$

$\frac{18}{3} = \frac{3x}{3}$

$\boxed{x = 6}$

4-54

c. $5 - 2(x+6) = 14$

$5 + (-2x - 12) = 14$

$5 - 2x - 12 = 14$

$+2x \quad +2x$

$5 - 12 = 14 + 2x$

$-7 = 14 + 2x$

$-14 \quad -14$

$\frac{-21}{2} = \frac{2x}{2}$

$-10.5 = x$

or $-10\frac{1}{2}$

or $-\frac{21}{2}$

d. $\frac{1}{2}x - 4 + 1 = -3 - \frac{1}{2}x$

$\frac{1}{2}x - 3 = -3 - \frac{1}{2}x$

$+3 \quad +3$

$\frac{1}{2}x + 0 = -\frac{1}{2}x$

$+\frac{1}{2}x \quad +\frac{1}{2}x$

$\frac{1}{2} + \frac{1}{2} = \frac{2}{2} = 1$

$\frac{1x}{1} = \frac{0}{1}$

$\boxed{x = 0}$