

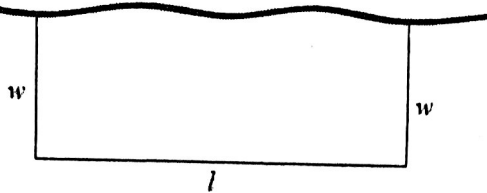
Name: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Class: \_\_\_\_\_

Algebra  
 Unit 2  
 HW 2-3

1) A rectangular area is being fenced in along a river that serves as one side of the rectangle.

(a) Write an equation that relates the amount of fencing,  $F$ , needed as a function of the width  $w$  and the length  $l$ .

$$w + w + l$$



(b) If  $w = 12$  feet and  $l = 20$  feet, what is the value of  $F$ ?

$$12 + 12 + 20 = \boxed{44 \text{ ft}}$$

(c) If we know that the amount of fencing we have available is 120 feet and we want to devote 30 feet to the length,  $l$ , then set up an equation to solve for  $w$  and find the width.

2) Solve:  $\frac{5(x-3)}{8} + 2 = 7$

$$\frac{5x-15}{8} + 2 = 7$$

$$\frac{5x-15}{8} - 2 = 7 - 2$$

$$120 = 30 + w + w$$

$$120 = 30 + 2w$$

$$\frac{-30}{-30} \quad \frac{-30}{-30}$$

$$\frac{90}{2} = \frac{2w}{2}$$

$$\boxed{w = 45}$$

$$\frac{5x-15}{8} = 5$$

$$5x-15 = 40$$

$$\frac{+15}{+15}$$

$$\frac{5x}{5} = \frac{55}{5}$$

$$\boxed{x = 11}$$

3) Solve:  $3(x-4) - 2(3x+4) = 4(3-x) + 5x+4$

$$3x + 12 - 6x - 8 = 12 - 4x + 5x + 4$$

$$9x - 20 = 16 + x$$

$$\frac{+20}{+20} \quad \frac{+20}{+20}$$

$$9x = 36 + x$$

$$\frac{-x}{-x}$$

$$\frac{8x}{8} = \frac{36}{8}$$

$$\boxed{x = 4.5}$$

4) Solve:  $\frac{1}{2}(2-6x) - 4\left(x+\frac{3}{2}\right) = -(x-3) + 4$

$$1 - 3x - 4x - 6 = -x + 3 + 4$$

$$\frac{-5 - 7x}{-7 + 7x} = \frac{-x + 7}{+7x - 7}$$

$$\frac{-12}{6} = \frac{6x}{6}$$

$$\boxed{x = -2}$$

- 5) Look through the following work, find the mistake, and circle it. Then, to the side, show the appropriate work.

$$\frac{-2(x-3)}{5} = 4$$

$$5 \cdot \frac{-2(x-3)}{5} = 4 \cdot 5$$

$$-2(x-3) = 20$$

$$-2x - 6 = 20$$

$$-2x - 6 + 6 = 20 + 6$$

$$-2x = 26$$

$$\frac{-2x}{-2} = \frac{26}{-2}$$

$$x = -13$$

$$\begin{array}{r} -2x + 6 = 20 \\ -6 \quad -6 \\ \hline -2x = 14 \\ \frac{-2x}{-2} = \frac{14}{-2} \\ \boxed{x = -7} \end{array}$$

- 6) Antonio's plan: Monthly cost =  $3(.75m + 10) + 2.50m - 15$  where  $m$  is the number of minutes used  
 Marcus's Plan: Monthly cost =  $2(1.75m + 12.50) - .75m + 4$  where  $m$  is the number of minutes used  
 By setting their monthly cost equal, decide after how many minutes the two plans will cost the same.

7) Solve and check your answer:  $8 - 2(w + 4) - 6w = 10 - 6w - (3w - 5)$

$$3(.75m + 10) + 2.5m - 15 = 2(1.75m + 12.5) - .75m + 4$$

$$2.25m + 30 + 2.5m - 15 = 3.5m + 25 - .75m + 4$$

$$4.75m + 15 = 2.75m + 29$$

$$-2.75m \quad -15 \quad -2.75m \quad -15$$

$$\frac{2m}{2} = \frac{14}{2}$$

$$\boxed{m = 7}$$

$$7) \quad 8 - 2w - 8 - 6w = 10 - 6w - 3w + 5$$

$$\begin{array}{r} -8w = 15 - 9w \\ +9w \quad \quad +9w \end{array}$$

$$\boxed{w = 15}$$

check

$$8 - 2(15 + 4) - 6(15) \stackrel{?}{=} ?$$

$$\rightarrow 10 - 4(15) - (3(15) - 5)$$

$$-120 = -120 \quad \boxed{\checkmark}$$