Math 9   Name: _____
Ch. 6 – Linear Equations and Inequalities   Block: _____

6.1 Part 2 – Solving Two-Step Equations

To solve a two-step equation, we still use inverse operations but we have to be careful of the order in which we apply them to isolate the variable.

Ex. 1: Use inverse operations to solve $4.5d - 3.2 = -18.5$.

Build the equation, starting with the variable

$$d \xrightarrow{\times 4.5} 4.5d \xrightarrow{-3.2} 4.5d - 3.2$$

$$\boxed{-3.4} \xleftarrow{\div 4.5} -15.3 \xleftarrow{+3.2} -18.5$$

Solve the equation to find the value of the variable

From the example above, we can see that we will always "undo" the $+/-$ first, then "undo" the $\times/\div$ last. Think "reverse BEDMAS".

Ex. 2: Solve:

(a) $3 + \dfrac{r}{4} = 7.2$

$-3 \qquad -3$

$$\dfrac{r}{4} = 4.2$$

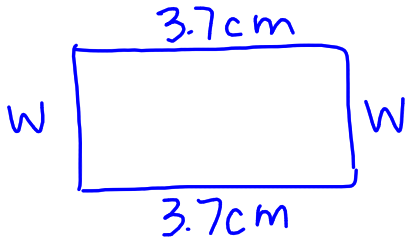$$4\left(\dfrac{r}{4}\right) = 4(4.2)$$

$$\boxed{r = 16.8}$$

(b) $-11 = -2(m + 4)$

$$-11 = -2m - 8$$

$+8 \qquad\qquad +8$

$$\dfrac{-3}{-2} = \dfrac{-2m}{-2}$$

$$\boxed{\dfrac{3}{2} = m \text{ or} \\ 1.5 = m}$$

$$W \cdot W = W^2 \qquad W + W = 2W$$

Ex. 3: A rectangle has length 3.7 cm and perimeter 13.2 cm. Write and solve an equation that will determine the width of the rectangle.

3.7 cm

W   W

3.7 cm

$$3.7 + W + 3.7 + W = 13.2$$

$$+7.4 + 2W = 13.2$$
$$-7.4 \qquad\qquad -7.4$$

$$\frac{2W}{2} = \frac{5.8}{2}$$

$$W = \boxed{2.9 \text{ cm}}$$

Ex. 4: Jenna works in a clothing store. She earns $2000 per month, plus a commission of 8% of her sales. Last month, Jenna earned $2400. Determine her sales for the month.

$8 \div 100$
$= 0.08$

0.08

8% of sales

$$0.08 \times s$$

$$+2000 + 0.08s = 2400$$
$$-2000 \qquad\qquad -2000$$

$$\frac{0.08 s}{0.08} = \frac{400}{0.08}$$

$$\boxed{s = \$5000}$$