Friday, October 23rd

Solving Simple Equations with Integers

Rules:

Always do the opposite to get the number on to the "other side" so we can isolate for x

1- Adding becomes a subtraction

2- Subtraction becomes an addition

3- Multiplication becomes a division

4- Division becomes a multiplication

Example 1:

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

$x = -1$

check

$x - 2 = -3$

$-1 - 2 = -3$ ✓

$-1 + -2 = -3$

Example 2:

$x \cancel{-2} = -6$ $+2$ $+2$

$x = -4$

Check

$x - 2 = -6$

$-4 - 2$

$-4 + -2$

-6 ✓

Example 3:

$-x = 3$

$(-1)(x) = 3$

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

$x = -3$

Note:

$x = (1)(x)$

$-x = (-1)(x)$

Check: $-x = 3$

$(-1)(x) = 3$

$(-1)(-3)$

3 ✓

Example 4:

$-x \cancel{-3}^{\cancel{+3}} = -9^{+3}$

$-x = -6$

$(-1)(x) = -6$

$\frac{\cancel{(-1)}(x)}{\cancel{-1}} = \frac{-6}{-1}$

$x = 6$

Example 5:

$-\cancel{x+2}^{\cancel{2}} = -12^{-2}$

$-x = -12 + -2$

sub. sign rule #1

$-x = -14$

$\frac{(\cancel{-1})(x)}{\cancel{-1}} = \frac{-14}{-1}$

$x = 14$

Check

$-x + 2 = -12$

$-14 + 2$

-12

Example 6:

-3x = 18

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

$$x = -6$$

Example 7:

-4x = 24

$$\frac{-4x}{-4} = \frac{24}{-4}$$

$$x = -6$$

Example 8:

-5x = -35

$$\frac{-5x}{-5} = \frac{-35}{-5}$$

$$x = 7.$$

Example 9:

$\frac{x}{4} = -9$

$\left(\frac{x}{\cancel{4}}\right)\cancel{(4)} = (-9)(4)$

$x = -36$

Example 10:

$$\frac{-x}{-5} = -2$$

$$\left(\frac{-x}{-5}\right)(-5) = (-2)(-5)$$

$$-x = 10$$

$$\frac{(-1)(x)}{-1} = \frac{10}{-1}$$

$$x = -10$$

Check:

$$\frac{-(-10)}{-5}$$

$$= \frac{10}{-5} = -2 \checkmark$$