Today we will be solving equations in two steps (an addition/subtraction) followed by a division. We call this "two-step solving". In order for the next few days to go well, we need to be very proficient at two step solving. Let's do a few together, and talk about how you could check your answers.

Example: Solve the following equation

$2.3x + 11.2 = 36.5$

$\underline{-11.2 \quad -11.2}$

$\dfrac{2.3x}{2.3} = \dfrac{25.3}{2.3}$

$\boxed{x = 11}$

Am I Right?

Does $2.3(11) + 11.2 = 36.5$

$36.5 = 36.5$

✓

Example: Solve the following equation

$7x - 37 = 54$

$\underline{+37 \quad +37}$

$\dfrac{7x}{7} = \dfrac{91}{7}$

$\boxed{x = 13}$

Am I Right?

Does $7(13) - 37 = 54$?

$54 = 54$

✓

You try the following two:

a) $4x + 29 = 5$

$-29 \quad -29$

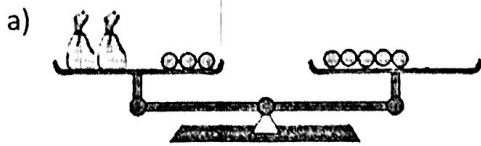$\dfrac{4x}{4} = \dfrac{-24}{4}$

$\boxed{x = -6}$

b) $21x - 13 = 470$

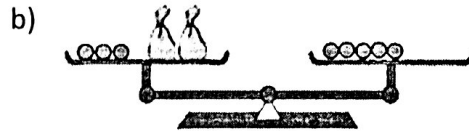$+13 \quad +13$

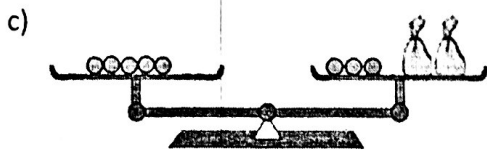$\dfrac{21x}{21} = \dfrac{483}{21}$

$\boxed{x = 23}$

Example: Write an equation that models the following four scale diagrams if "x" is the number of candies in each.
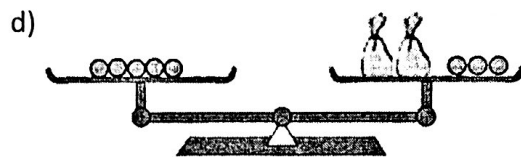
a)

Equation: $2x + 3 = 5$

b)

Equation: $3 + 2x = 5$

c)

Equation: $5 = 3 + 2x$

d)

Equation: $5 = 2x + 3$

Reflect: How are the four scale diagram similar? Would you expect to get the same solution for each?

The equations you solve with two-step solving might seem a little different at times. The variable could be placed in different spots. We will quickly go over a method for solving these.

Example: Solve the following equations by rewriting them first

a) $16 + 9x = 70$

$$9x + 16 = 70$$
$$ -16 \quad\quad -16$$
$$\frac{9x}{9} = \frac{54}{9}$$
$$x = 6$$

b) $20 = 5 + 3x$

$$3x + 5 = 20$$
$$ -5 \quad\quad -5$$
$$\frac{3x}{3} = \frac{15}{3}$$
$$x = 5$$

Note: Some of you may find this step unnecessary, and can solve by using opposite operations right away.