

# 3.3 Solving Equations using addition and subtraction

EQ: How can we solve addition and subtraction equations?

- 3Q's
- ① What is my variable?
  - ② What is being done to my variable?
  - ③ What is the inverse operation?

\* When you add or subtract the same number to both sides of an equation, they remain equivalent  
 → an equation is just 2 equivalent expressions put together by an equal sign.

Example 1: Solve  $x - 5 = -1$

- ①  $x$
- ②  $-5$
- ③  $+5$

$$\begin{array}{r} x - 5 = -1 \\ +5 \quad +5 \\ \hline x = 4 \end{array}$$

"isolate the variable"

line for balance

check my work

$$\begin{array}{l} 4 - 5 = -1 \\ -1 = -1 \checkmark \end{array}$$

Example 2: Solve  $y + \frac{3}{2} = \frac{1}{2}$

- ①  $y$
- ②  $+\frac{3}{2}$
- ③  $-\frac{3}{2}$

$$\begin{array}{r} y + \frac{3}{2} = \frac{1}{2} \\ -\frac{3}{2} \quad -\frac{3}{2} \\ \hline y = -\frac{2}{2} \end{array}$$

or

$$y = -1$$

Example 3: Solve  $x - 7 = -3$

- ①  $x$
- ②  $-7$
- ③  $+7$

$$\begin{array}{r} x - 7 = -3 \\ +7 \quad +7 \\ \hline x = 4 \end{array}$$

Check my work w/ substitution

$$\begin{array}{l} 4 - 7 = -3 \\ -3 = -3 \checkmark \end{array}$$

Summary: