3.7 (page 110)   Solving Inequalities:
Adding and Subtracting

Recall:

An inequality is a mathematical sentence that contains one of these symbols:
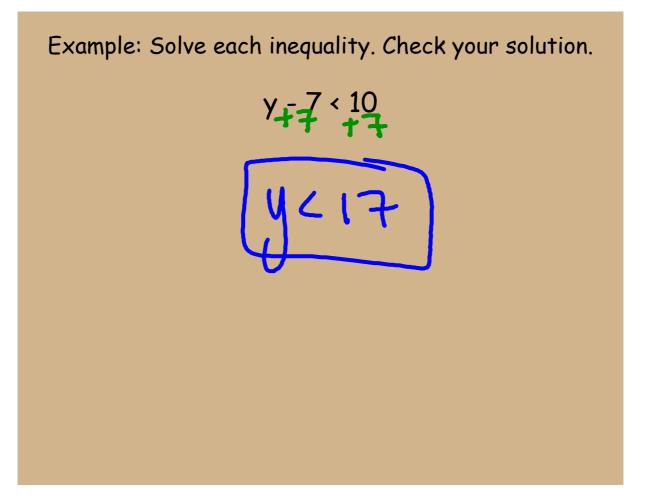
$$<, \quad >, \quad \leq, \quad \geq$$

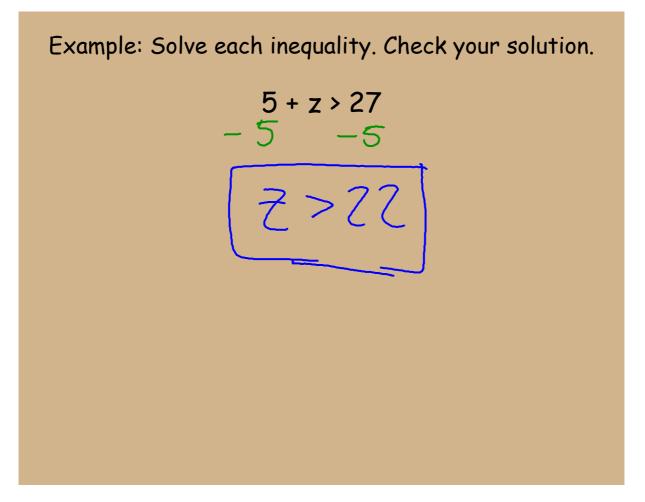The same steps used to solve equations are used to solve inequalities.

※ Variable comes first in answer ※

3.7 (page 110)   Solving Inequalities:
Adding and Subtracting

Addition and Subtraction Properties of Inequalities:

Adding or subtracting the same number from each side of an inequality does not change the truth of the inequality.

Example: Solve each inequality. Check your solution.

$$y - 7 < 10$$
$$+7 \qquad +7$$

$$\boxed{y < 17}$$

Example: Solve each inequality. Check your solution.

$$m + 13 > 8$$
$$-13 \qquad -13 \qquad 8 - 13$$
$$8 + -13$$

$$\boxed{m > -5}$$

Example: Solve each inequality. Check your solution.

$$5 + z > 27$$
$$-5 \quad\quad -5$$

$$\boxed{z > 22}$$

Example: Solve each inequality. Check your solution.

$$-7 + b < -5$$
$$-(-7) \quad\quad +(+7)$$

$$\boxed{b < 2}$$

Example: Solve each inequality. Check your solution.

$$w + (-3) < -7$$
$$-(-3) \quad +(+3)$$

$$\boxed{w < -4}$$

Example: Solve each inequality. Check your solution.

$$4 < y - 23$$
$$+23 \quad +23$$

$$27 < y$$

$$\boxed{y > 27}$$

Example: Solve each inequality. Check your solution.

$$20 > z + (-19)$$

$$+ (+19) \quad - (-19)$$

$$39 > z$$

$$\boxed{z < 39}$$

Example: Solve each inequality. Check your solution.

$$t - (-5) > -6$$

$$+ (-5) \quad + (-5)$$

$$\boxed{t > -11}$$

Example: Solve each inequality. Check your solution.

$$-41 > r - (-8)$$
$$+(-8) \quad +(-8)$$

$$-49 > r$$

$$\boxed{r < -49}$$

Example: Solve each inequality. Check your solution.

$$72 + k < 56$$
$$-72 \qquad -72$$

$$56 - 72$$
$$56 + {}^-72$$

$$\boxed{k < -16}$$

Example: Solve each inequality. Check your solution.

$$-30 \leq x + (-5)$$

$$+ (+5) \quad - (-5)$$

$$-25 \leq x$$

$$\boxed{x \geq -25}$$

Example: Solve each inequality. Check your solution.

$$-67 + p \geq -48$$

$$- (-67) \quad + (+67)$$

$$\boxed{p \geq 19}$$