Math 9

Section 6.4. Solving Linear Inequalities by Using Addition and Subtraction

Learning Intention:

I can use addition and subtraction to solve inequalities.

The strategy that we used to solve an equation can be used to solve an inequality.
Isolate the variable to solve.

***Example**: solve*

Equation

$$x - 6 = -2$$
$$+6 \qquad +6$$
$$x = 4$$

Inequality

$$x - 6 < -2$$
$$+6 \qquad +6$$
$$x < 4$$

Please note that an equation has only one solution and an inequality has many solutions

Example1: Solving an Inequality

Solve the inequality, Graph the solution on a number line.

a) $6 \le x - 4$

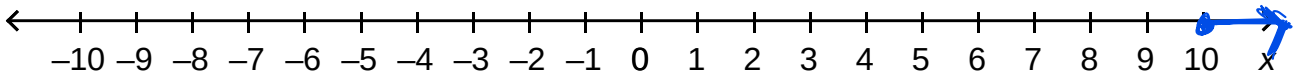
$+4 \qquad +4$

$10 \le x$

$x \ge 10$

$a < b$

$b > a$



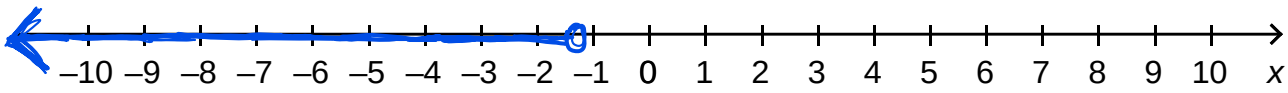
b) $-7 > 3d - 6$

$+6 \qquad +6$

$\frac{-1}{3} > \frac{3d}{3}$

$-\frac{1}{3} > d$

$d < -\frac{1}{3}$



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Example2: Solving an Inequality with Variables on Both Sides

Solve the inequality, Graph the solution on a number line.

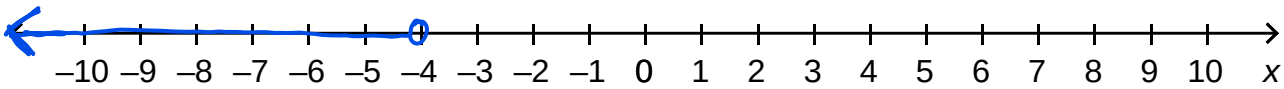
a) $3d + 2 < 2d - 2$

$-2 \quad -2$

$-2d \quad -2d$

$3d < 2d - 4$

$d < -4$



b) $4 - 4x > 6 - 5x$

$+5x \quad +5x$

$-4 \quad -4$

$4 + x > 6$

$x > 2$

Check: 1

$4 - 4(2) > 6 - 5(2)$

$4 - 8 > 6 - 10$

$-4 > -4$

* should be equal

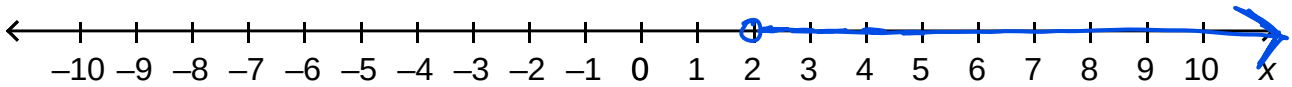
Check: 2

$4 - 4(4) > 6 - 5(4)$

$4 - 16 > 6 - 20$

$-12 > -14$

* statement should be true.



Choose Your Own Adventure:

Option A: pg 298 # 8-10 + 16a

Option B: pg 298 # 12-15