

## 3.2 Inequalities

### -A- Properties of Inequalities

#### Adding / Subtracting:

→ When you **add (or subtract)** the same number on each side of an inequality, you get an inequality in the **SAME** direction.

Ex:  $x - 5 < 16$

Sign stays the same direction

Solution set:

Interval:

Number line: 1

#### Multiplying/Dividing:

A) If you **multiply (or divide)** both sides by the same **positive** number, you keep the inequality sign the **same** direction

Ex:  $3x \geq 12$

Sign stays the same

Solution Set:

Interval:

Number Line: 2

#### Multiplying/Dividing:

B) If you **multiply (or divide)** both sides by the same **negative** number, you **reverse** the inequality sign

Ex:  $-3x \geq 12$

Sign changes direction

Solution Set:

Interval:

Number Line: 3

Ex: solve for x, write the solution set, interval notation and number line

1)  $5x - 7 < 13$

2)  $4x + 2 \geq 8x - 6$

S.S. :

S.S. :

Interval :

Interval :

N.L. :

N.L. : 4

Ex: solve for x, write the solution set, interval notation and number line

3)  $2x - 7 \leq 9x + 14$

4)  $-\frac{1}{2}x + 3 \geq 9$

S.S. :

S.S. :

Interval :

Interval :

N.L. :

N.L. : 5

### Practice:

### W.S. 3.2-A- Solving Inequalities

