Multiplication Property
1) If a < b and c is positive, then ac < bc
2) If a < b and c is negative then ac > bc

Division Property
1) If a < b and c is positive, then a/c < b/c
2) If a < b and c is negative then a/c > b/c

Ex 1) Solve the inequality $7x + 23 < 2$

$$7x + 23 < 2$$
$$ -23 \phantom{<} -23$$

$$\frac{7x}{7} < \frac{-21}{7}$$

$$x < -3$$
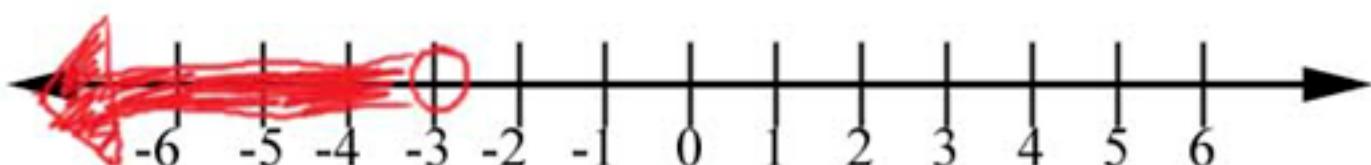
Ex 2) Solve the inequality 4(2 - x) < 6 - x

$$4(2-x) < 6-x$$

$$8 - 4x < 6 - x$$
$$\quad +x \qquad\quad +x$$

$$8 - 3x < 6$$
$$-8 \qquad -8$$

$$-3x < -2$$
$$\overline{-3} \qquad \overline{-3}$$

$$x > \frac{2}{3}$$
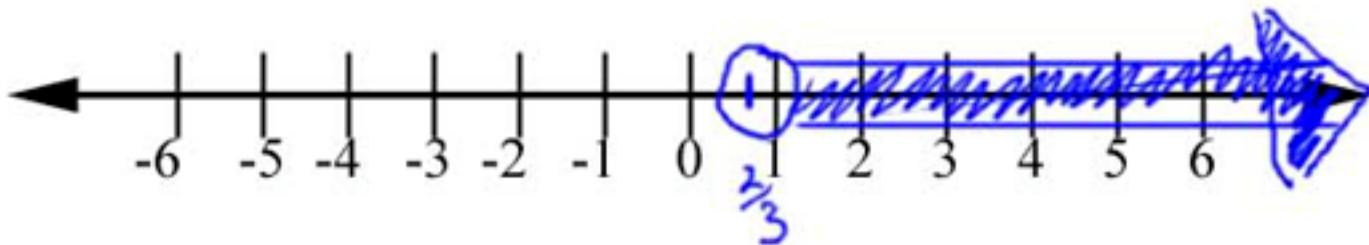
Ex 3) Solve the inequality 8x > 4(1 + 2x)

$$8x > 4(1+2x)$$

$$8x > 4 + 8x$$
$$-8x \qquad -8x$$

$$0 > 4$$

False statement: No Solution, {}, ∅

Ex 4) Solve the inequality $6x < 2(5 + 3x)$

$6x < 10 + 6x$
$-6x \qquad -6x$

$0 < 10$

True Statement: All Real Numbers $\mathbb{R}$