

4.3a Solving Inequalities Mult./Div.

Mult. & Div. Properties of Inequality (Case 1) - When you multiply or divide each side of an inequality by the same positive #, the inequality remains true.

ie. $-4 < 6$
 $(2)(-4) < (2)(6)$
 True $-8 < 12$

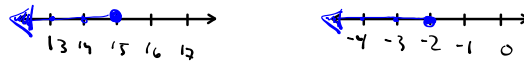
$-4 < 6$
 $\frac{-4}{2} < \frac{6}{2}$
 $-2 < 3$ true

Ex. 1 a) $\frac{x}{5} \leq 3 \cdot 5$
 $x \leq 15$

$13 \leq 15$ T
 $14 \leq 15$ T
 $15 \leq 15$ T
 $16 \leq 15$ F

b) $\frac{-6}{3} \geq \frac{18}{3}$
 $-2 \geq 6$

$-2 \geq -4$ T
 $-2 \geq -3$ T
 $-2 \geq -2$ T
 $-2 \geq -1$ F



Mult. & Div. Properties of Inequality (Case 2) - When you multiply or divide each side of an inequality by the same negative #, the direction of the inequality must be REVERSED in order for the inequality to remain true.

ie. $-4 < 6$
 $\frac{-4}{-2} < \frac{6}{-2}$
 false $2 < -3$
 true $2 > -3$

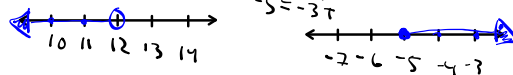
$-4 < 6$
 $(-2)(-4) < (-2)(6)$
 false $8 < -12$
 true $8 > -12$

Ex. 2 a) $\frac{x}{3} > -4 \cdot -3$
 $x < 12$ (Reverse)

$10 < 12$ T
 $11 < 12$ T
 $12 < 12$ F
 $13 < 12$ F

b) $\frac{35}{-7} \geq \frac{17x}{-7}$
 $-5 \leq x$ (Reverse)

$-5 \leq -2$ F
 $-5 \leq -5$ T
 $-5 \leq -4$ T
 $-5 \leq -3$ T



Ex. 3 a) $-4 < 2n$
 $-2 < n$

$-2 < -3$ F
 $-2 < -2$ F
 $-2 < -1$ T
 $-2 < 0$ T

b) $\frac{6n}{-6} \leq \frac{-24}{-6}$
 $n \geq 4$ (Reverse)

$3 \geq 4$ F
 $4 \geq 4$ T
 $5 \geq 4$ T
 $6 \geq 4$ T

