

Unit 4 Day 6  
4-5 Inequalities

Oct. 27, 2015

<u>Inequality Statement</u>	<u>Algebraic Form</u>
1) Height must be over 150cm	$h > 150$
2) Age must be at least 11	$a \geq 11$
3) Temperature cannot exceed 20°C	$T \leq 20$
4) Age must be under 12.	$a < 12$

<u>Inequality</u>	<u>Graph</u>
1) $x > 3$	
2) $x \leq -2$	
3) $x < -1$	
4) $x \geq 17$	
5) $x \neq 1$	

Write with variable on left.

- 6)  $2 < x$       Read "Right to Left"       $x > 2$
- 7)  $-1 \geq x$        $x \leq -1$
- 8)  $-17 \leq x$        $x \geq -17$

## Solving Equalities vs. Inequalities

$$2x + 5 = 7$$

$$\begin{array}{r} -5 \quad -5 \\ \hline \end{array}$$

$$2x = 2$$

$$\begin{array}{r} 2 \quad 2 \\ \hline \end{array}$$

$$x = 1$$

$$2x + 5 > 7$$

$$\begin{array}{r} -5 \quad -5 \\ \hline \end{array}$$

$$2x > 2$$

$$\begin{array}{r} 2 \quad 2 \\ \hline \end{array}$$

$$x > 1$$

$$9) 3x + 8 < -1$$

$$\begin{array}{r} -8 \quad -8 \\ \hline \end{array}$$

$$3x < -9$$

$$\begin{array}{r} 3 \quad 3 \\ \hline \end{array}$$

$$x < -3$$

$$10) 5x - 3 \geq x + 9$$

$$\begin{array}{r} -x + 3 \quad -x + 3 \\ \hline \end{array}$$

$$4x \geq 12$$

$$\begin{array}{r} 4 \quad 4 \\ \hline \end{array}$$

$$x \geq 3$$

Inequalities can be tricky!

When we multiply or divide by a negative, it has the effect of flipping the scales, so we must flip the inequality.

$$-x > 3$$

$$\begin{array}{r} -1 \quad -1 \\ \hline \end{array}$$

$$x < -3$$

$$-x > 3$$

$$\begin{array}{r} +x \quad +x \\ \hline \end{array}$$

$$0 > x + 3$$

$$\begin{array}{r} -3 \quad -3 \\ \hline \end{array}$$

$$-3 > x$$

$$x < -3$$

$$11) -3x \geq -9$$

$$\begin{array}{r} -3 \quad -3 \\ \hline \end{array}$$

$$x \leq 3$$

Practice 4-6

$$12) 5x \leq -10$$

$$\begin{array}{r} 5 \quad 5 \\ \hline \end{array}$$

$$x \leq -2$$