

INTRO TO INEQUALITIES

An equation uses an equal $=$ sign to show that both sides are equal.

An inequality shows that both sides are not equal. \neq

GREATER THAN	GREATER THAN OR EQUAL TO	LESS THAN	LESS THAN OR EQUAL TO	NOT EQUAL TO
$>$	\geq	$<$	\leq	\neq

Use an inequality symbol to make each mathematical statement true.

$$4 \begin{matrix} < \\ \neq \end{matrix} 9$$

$$0.5 \begin{matrix} > \\ \neq \end{matrix} 0.45$$

$$-3 \begin{matrix} < \\ \neq \end{matrix} -2$$

$$1.04 \begin{matrix} < \\ \neq \end{matrix} 1.4$$

INEQUALITIES

- Use the variable as the starting point when reading an inequality statement.

Ex: $6 \leq x$ can be rewritten as $x \geq 6$

- A value can be substituted to determine if the inequality is correct.

Ex: $x + 6 > 11$, if $x > 5$

$$\begin{matrix} 5 + 6 > 11 \\ 11 > 11 \end{matrix} ; \text{false}$$

$7x < 45$, if $x < 6$

$$\begin{matrix} 7(6) < 45 \\ 42 < 45 \end{matrix} ; \text{true}$$

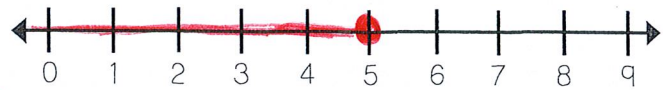
Determine whether the given value makes a true statement.

1. $k + 8 \geq 19$, if $k = 11$ $11 + 8 \geq 19$ $19 \geq 19$ *True	2. $12 > f$, if $f = 3$ $12 > 3$ True	3. $c - 12 > 30$, if $c = 13$
4. $16 < b - 8$, if $b = 22$	5. $\frac{x}{12} \leq 3$, if $x = 48$ $\frac{48}{12} \leq 3$ $4 \leq 3$ *False	6. $10 + p \leq 20$, if $p = 15$

Inequalities can also be graphed on the number line.

● INCLUDED	○ NOT INCLUDED
=	≠
≥, ≤	>, <

less-left
 $x \leq 5$



* all numbers left of 5 and 5 can be included *

Practice graphing the following inequalities.

* flip flop so variable on the left

<p>7. $k > 11$ <i>greater → right</i></p>	<p>8. $12 \geq f$ <i>f is less or =</i> <i>= or less → left</i></p> <p style="text-align: center;">$f \leq 12$</p>	<p>9. $d < 6$</p>
<p>10. $c < 25$</p>	<p>11. $0 \leq b$ <i>b ≥ 0</i></p>	<p>12. $x \geq 4.5$</p>

Based on each verbal expression below, write and graph an inequality.

<p>13. The McDonald family spends <u>no more than \$150</u> for groceries each week.</p> <p style="text-align: center;">$x \leq 150$</p>	<p>14. Jerod earns <u>at least \$10</u> when mowing lawns.</p> <p style="text-align: center;">$x \geq 10$</p>
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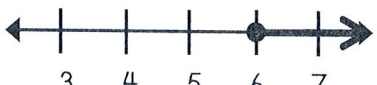
Summarize today's lesson:

INTRO TO INEQUALITIES


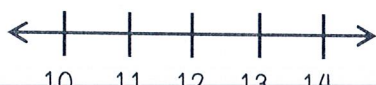

Substitute each variable to determine whether the inequality statement is true or false.

<p>1. $k + 12 \geq 20$, if $k = 15$</p>	<p>2. $16 > f$, if $f = 17$</p>	<p>3. $9 > d$, if $d = 3$</p>
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Write an inequality for each solution set graphed below.

<p>4.</p> 	<p>5.</p> 	<p>6.</p> 
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Practice graphing the following inequalities.

<p>7. $k \leq 8$</p> 	<p>8. $13.5 \geq f$</p> 	<p>9. $d < 4$</p> 
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Based on each verbal expression below, write and graph an inequality.

<p>10. The Parkland Zoo has a maximum capacity of 350 visitors (v).</p> 	<p>11. Trina must spend at least 45 minutes (m) studying for her test.</p> 
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