## Inequalities

*Fill in the guided notes as you watch the video in the Digital Toolbox.*

- An _____ represents two expressions that are _____ to each other.
- The symbols that represent inequalities are:

| Symbol | In words | On a number line |
|---|---|---|
| | is less than or equal to | |
| | is greater than or equal to | |
| | is less than | |
| | is greater than | |

- A solution to an inequality is infinite because it represents a _____ of values.
- Use an open or closed _____ to show that a value is or is not included as a solution.
- Use _____ on a number line to represent all values that are true for the inequality.

## Example 1

*Complete the example as you watch the video in the Digital Toolbox.*

**Solve. Graph the solutions on a number line.**

$2x - 7 < -5$

**Implement**

**Explain**

Add 7 to both sides

Multiply by $\frac{1}{2}$ on both sides

Open point, shade to the *left* of 1

## Example 2

*Complete the example as you watch the video in the Digital Toolbox.*

**Solve. Graph the solutions on a number line.**

$\frac{2}{3}(x-3)>4$


**Implement**

**Explain**

Distribute
Add 2 to both sides

Multiply by $\frac{3}{2}$ on both sides

Open point, shade to the *right* of 9

## Practice

**Graph the solutions on a number line.**

**1)** $x \geq \frac{1}{2}$

**2)** $x < -5$

**3)** $x \leq 0$

**Solve. Graph the solutions on a number line.**

**4)** $x + 4 > 6$

**5)** $3x + 2 \leq 7$

**6)** $\frac{2}{9}(x + 9) \geq 4$