Inequalities and Interval Notation
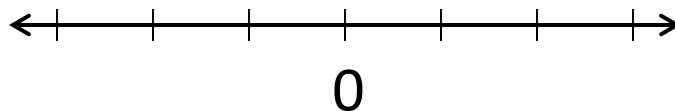
Inequalities and Interval Notation

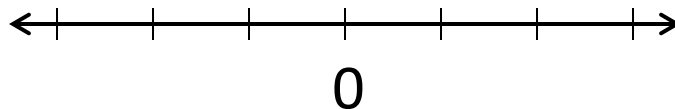| Inequality	Graph	Interval Notation
$x \geq -1$	←——+——+——+——+——+——+——→ 0	
$x < 2$	←——+——+——+——+——+——+——→ 0	

Note: Use "inf" for infinity and "-inf" for negative infinity.

Inequalities and Interval Notation

Example 1 Determine the solution set for each of the following inequalities.

(a) $x + 17 \leq -13$

(b) $x - 4 > 11$

Inequalities and Interval Notation

Note: When we multiply or divide by a negative number, the symbol of inequality is reversed.

Example 2 Determine the solution set for each of the following inequalities.

(a) 6x < -18

(b) -5x $\geq$ 35

Inequalities and Interval Notation

Note: When we multiply or divide by a negative number, the symbol of inequality is reversed.

Example 3 Determine the solution set for each of the following inequalities.

$$-\frac{1}{8}x \leq -4$$

Inequalities and Interval Notation

Note: When we multiply or divide by a negative number, the symbol of inequality is reversed.

Example 4 Determine the solution set for each of the following inequalities.

$$10 > \frac{-2x}{5}$$

Solving Linear Inequalities

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Note: When we multiply or divide by a negative number, the symbol of inequality is reversed.

Example 1 Determine the solution set for each of the following inequalities.

$$8x > 6x - 4$$

Solving Linear Inequalities

Note: When we multiply or divide by a negative number, the symbol of inequality is reversed.

Example 2 Determine the solution set for each of the following inequalities.

$$-5x - 21 < 16$$

Solving Linear Inequalities

Note: When we multiply or divide by a negative number, the symbol of inequality is reversed.

Example 3 Determine the solution set for each of the following inequalities.

$$10x + 40 < 5x$$

Solving Linear Inequalities (Advanced)

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Note: When we multiply or divide by a negative number, the symbol of inequality is reversed.

Example 1 Determine the solution set for each of the following inequalities.

$$-2x + 8 \leq 4 - 3x$$

Solving Linear Inequalities (Advanced)

Note: When we multiply or divide by a negative number, the symbol of inequality is reversed.

Example 2 Determine the solution set for each of the following inequalities.

$$-4(x - 6) > -16$$

Solving Linear Inequalities (Advanced)

Note: When we multiply or divide by a negative number, the symbol of inequality is reversed.

Example 3 Determine the solution set for each of the following inequalities.

$$5x - 3 \geq 5(5 - 4x)$$

Solving Linear Inequalities (Advanced)

Note: When we multiply or divide by a negative number, the symbol of inequality is reversed.

Example 4 Determine the solution set for each of the following inequalities.

$$\frac{3x + 9}{-5} < 6$$