Solving Inequalities

Inequalities are sentences that compare two quantities that are not equal. The symbols below are used in inequalities.

Symbols	Words
$<$	less than
$>$	greater than
$\leq$	less than or equal to
$\geq$	greater than or equal to
$\neq$	not equal to

Inequalities usually have more than one solution.

Examples

1 **Solve $-13u > 143$.**

$$-13u > 143$$
$$\frac{-13u}{-13} < \frac{143}{-13}$$ *Divide each side by -13. Because you are dividing by a negative number, reverse the direction of the inequality.*
$$u < -11$$

Personal Tutor

2 **Solve $2x + 7 \leq 13$.**

$$2x + 7 \leq 13$$
$$2x + 7 - 7 \leq 13 - 7$$ *Subtract 7 from each side.*
$$2x \leq 6$$
$$\frac{2x}{2} \leq \frac{6}{2}$$ *Divide each side by 2.*
$$x \leq 3$$

To graph the solution on a number line, draw a bullet at 3. Then draw an arrow to show all numbers less than or equal to 3.