Solving Inequalities Graphic Organizer

Inequality: a mathematical statement that shows two quantities are _____ equivalent.

Differences between Equations and Inequalities:

Equations:	Inequalities:
• contains an equal sign (=) • shows 2 quantities as being equivalent	• contains an inequality symbol $(<, >, \leq, \geq, \neq)$ • shows 2 quantities as being NOT equivalent • when multiplying or dividing by a negative the inequality symbol _reverses_

How to Solve an Inequality: Use the same processes as solving equations, except for negative rule when multiplying or dividing.

Proving the Negative Rule: (multiplying)

1) Is the statement $3 < 5$ true? _____
2) Multiplying both sides by 2 results in the inequality $6 < 10$. Is this statement true? ___
3) Multiplying both sides by -2 results in the inequality $-6 < -10$. Is this statement true? _____
4) Flipping the inequality symbol makes it $-6 > -10$. Is this statement true?_____

Therefore when multiplying (or dividing) both sides of an inequality by a negative number, the _inequality symbol must be reversed_ in order to keep it a true statement.

Use the sequence chain below to guide you in solving equations.

Can you use the Distributive Property?
If yes, do it.
If no, ⟶

Can you combine any like terms?
If yes, do it.
If no, ⟶

Are there variable terms on both sides of the = sign?
If yes, collect them on one side.
If no, ⟶

Sequence Chain: *Solving Equations*

Is a number being added to or subtracted from the variable?
If yes, do the opposite to both sides.
If no, ⟶

Is the variable multiplied or divided by a number?
If yes, do the opposite to both sides.
If no, ⟶

Does your answer check using substitution?
If yes, you're done!
If no, try again.