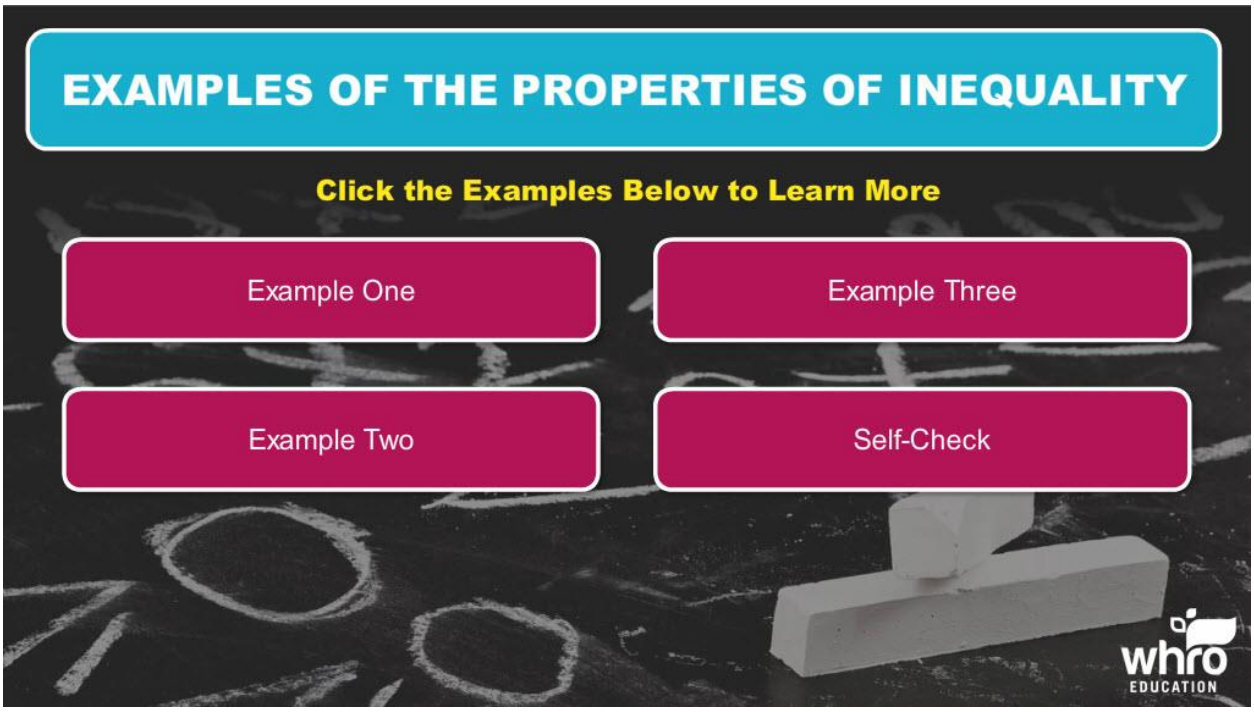
Module 7: Solving Linear Inequalities
Topic 1: Examples of the Properties of Inequality

Introduction



Click the examples below to learn more.

Module 7: Solving Linear Inequalities
Topic 1: Examples of the Properties of Inequality

Example 1

Apply the Transitive Property of Inequality to complete the following statement.

If $5x < 3y$ and $3y < 10x$, then $5x <$?

The Transitive Property of Inequality states that, If $a < b$ and $b < c$, then $a < c$.

In the given inequalities:

let a represent $5x$,

let b represent $3y$, and

let c represent $10x$.

Now, if $5x < 3y$ and $3y < 10x$, then $5x <$?

By following the pattern given by the Transitive Property of Inequality, the right side of the final inequality has a value of $10x$.

Example 2

Which property justifies the work between Steps 1 and Step 2?

Step 1: $x - 4 > 10$

Step 2: $x - 4 + 4 > 10 + 4$

Step 3: $x > 14$

Notice that four was added to both sides of the inequality given in step one in order to arrive at the inequality in step two. The addition property of inequality states that if the same value is added to both sides of the inequality, the inequality will remain true. Therefore, the addition property of inequality justifies the work between step one and step

Example 3

Step 1: $3x + 9 \leq 15$

Step 2: $3x + 9 - 9 \leq 15 - 9$

Step 3: $3x \leq 6$

Step 4: $\frac{3x}{3} \leq \frac{6}{3}$

Step 5: $x \leq 2$

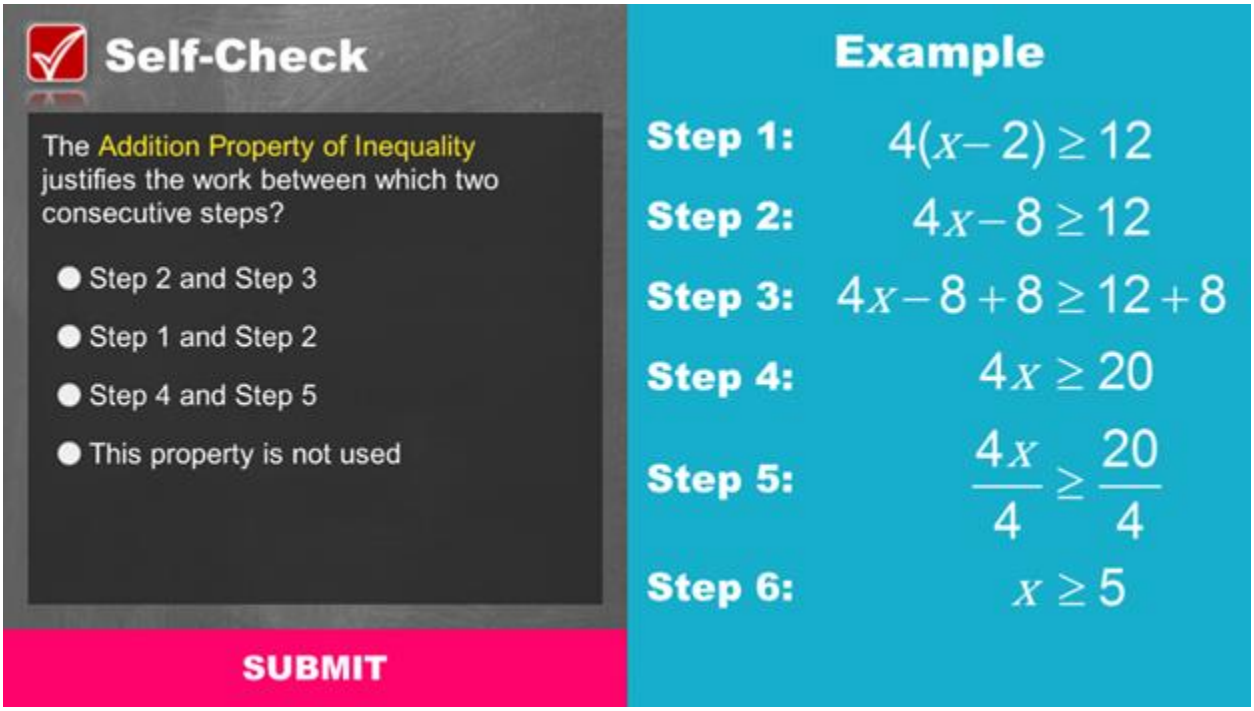
Which property justifies the work between Steps 1 and Step 2?

Notice that nine was subtracted from both sides of the inequality given in step one in order to arrive at the inequality in step two. The subtraction property of inequality states that if the same value is added to both sides of the inequality, the inequality will remain true. Therefore, the subtraction property of inequality justifies the work between step one and step two.

Which property validates the work between Steps 3 and Step 4?

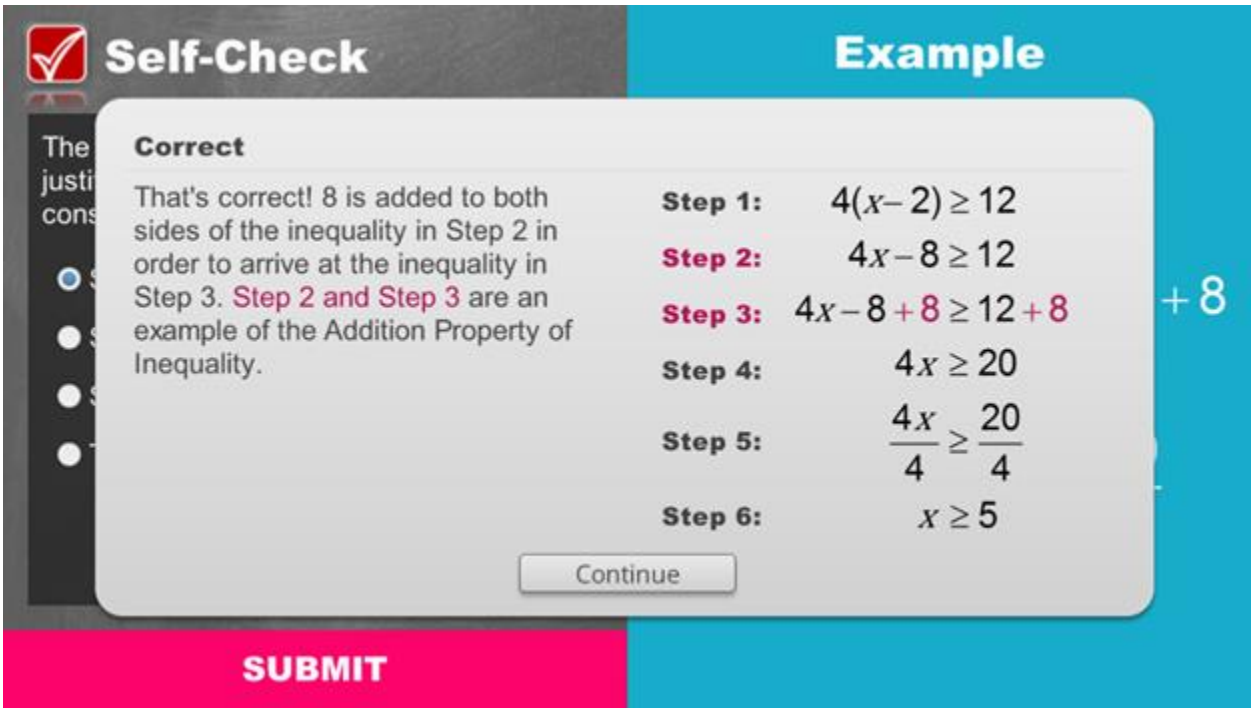
Notice that both sides of the inequality given in step three were divided by three in order to arrive at the inequality given in step four. The division property of inequality states that if both sides of an inequality are divided by the same value, that is greater than zero,

Self-Check 1



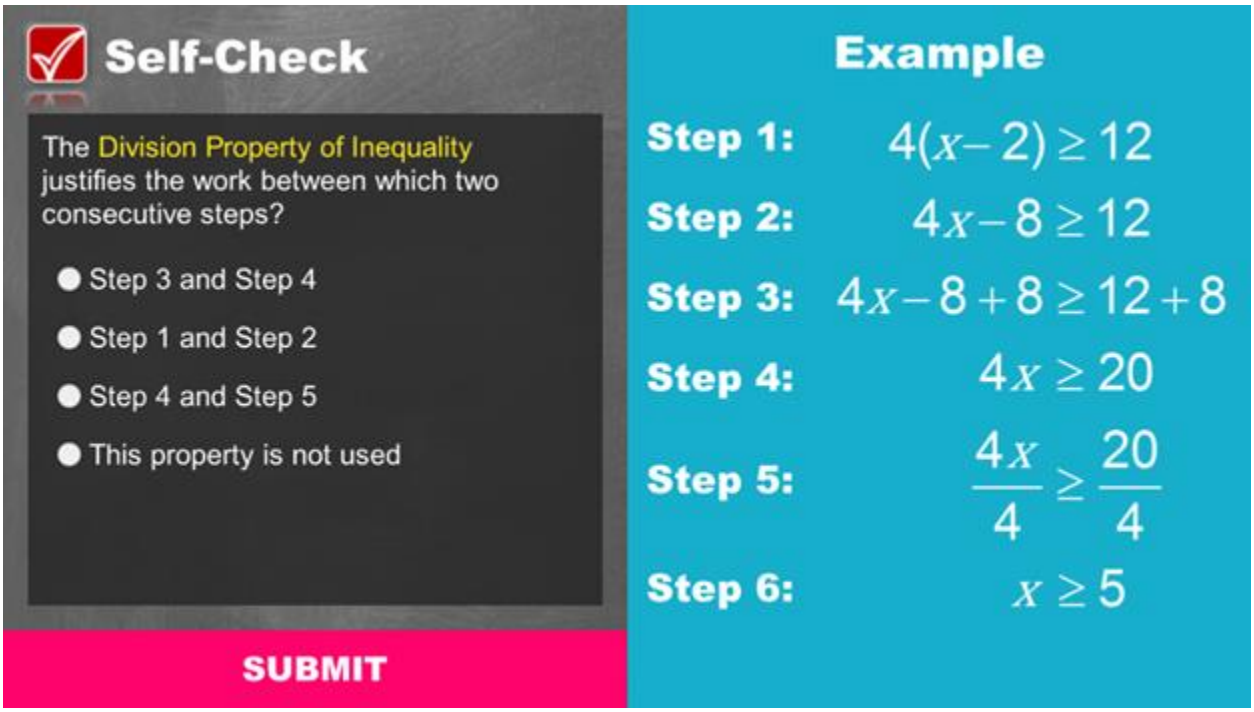
Solve the problem in the image above to check your understanding of the content.

Self-Check 1: Answer



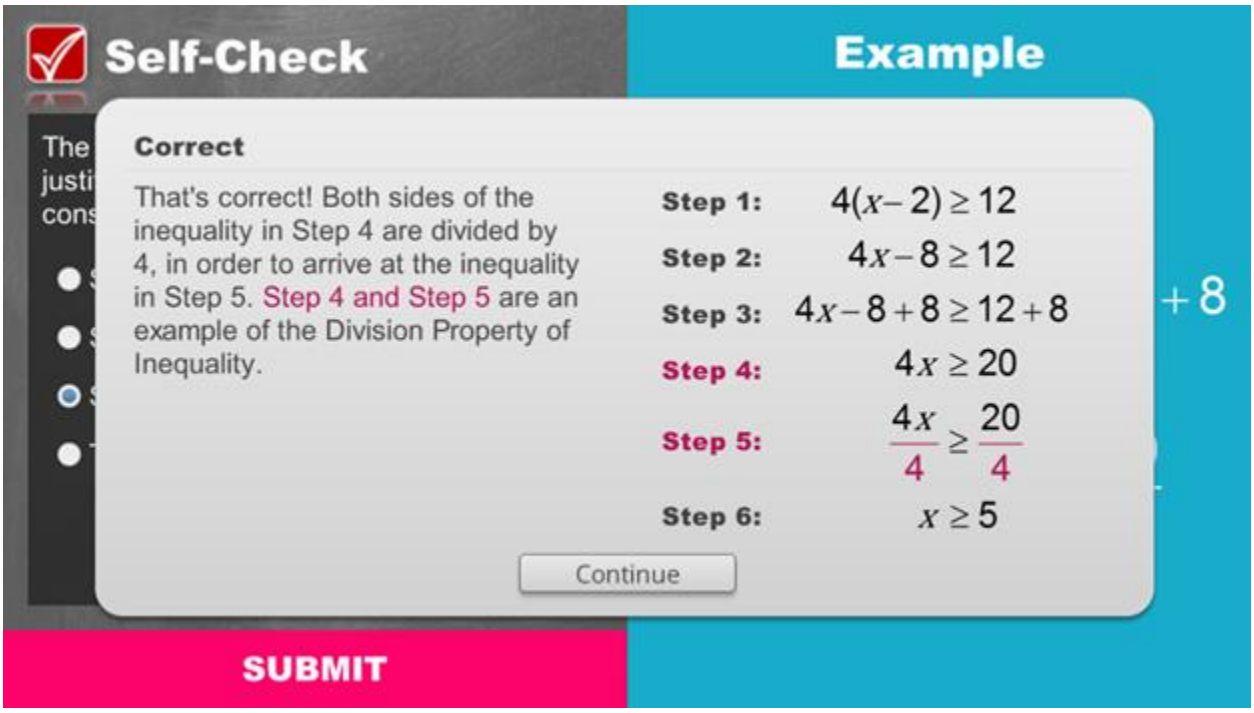
For your reference, the image above shows the correct solution to the self-check problem.

Self-Check 2



Solve the problem in the image above to check your understanding of the content.

Self-Check 2: Answer



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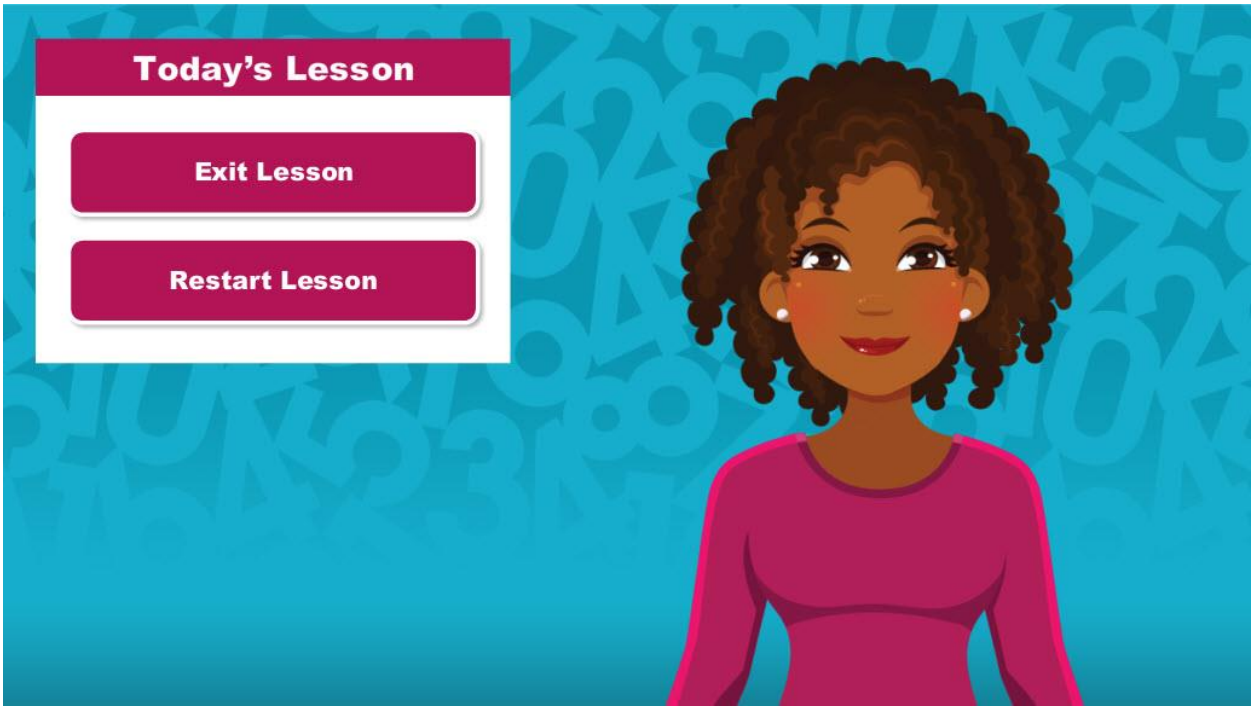
Conclusion



Today's Lesson: Exit Lesson or Restart Lesson