Solving Exponential Equations (lacking a common base) - Step-by-Step Lesson

Solve the exponential equation $5^e = 12$

Explanation:

When ever you are working with an equation, you need to remember that you can always do what ever you want to the equation, as long as it is done to both sides. Want to add, subtract, are throw an exponent in the mix? Go ahead; just remember to do it to both sides.

In this example we are given "e" as an exponent that we need to find the value of. The log rule tells us that we can switch between exponential and logarithm format by using the formula:

Rewrite the equation: $e \log 5 = \log 12$

$$e = \log 12 / \log 5$$

$$e = 1.08 / 0.70$$

$$e = 1.543$$

Answer: 1.543