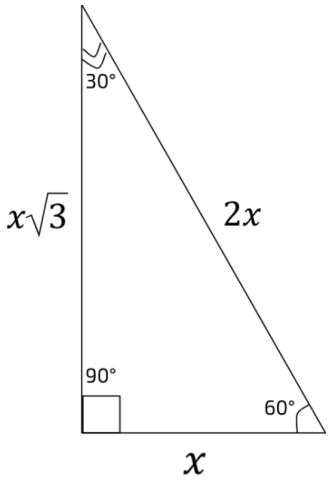
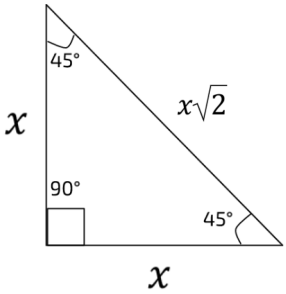
Special Right Triangles

Special right triangles are unique types of triangles that always have a right angle (90 degrees) and special ratios between their sides. These triangles are special because these ratios stay the same for any triangle of that type. There are two main types of special right triangles: the 30-60-90 triangle and the 45-45-90 triangle. The names of these triangles are based on the measurements of their angles. By knowing these special ratios, you can easily calculate the lengths of their sides and use them to solve more complex geometry problems.

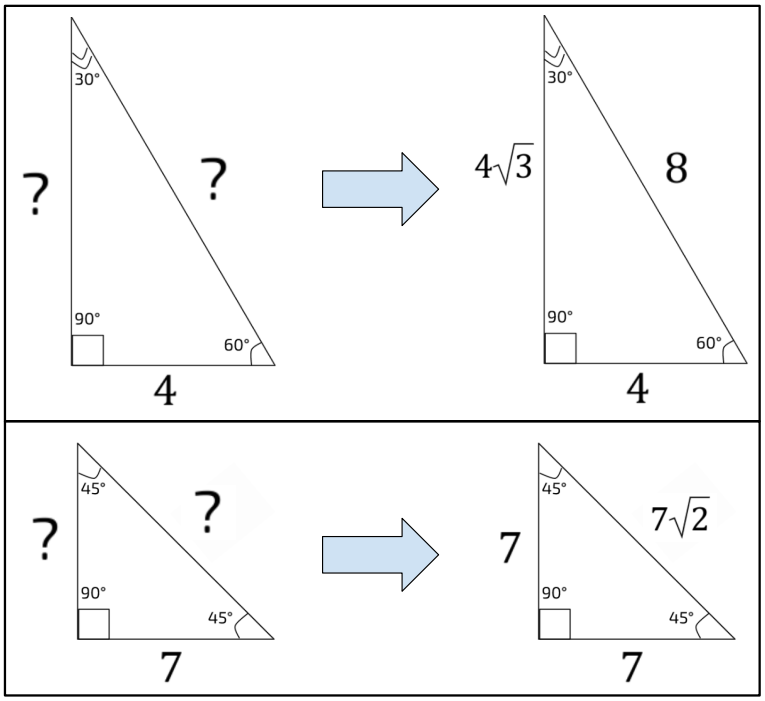
30-60-90



45-45-90



Examples



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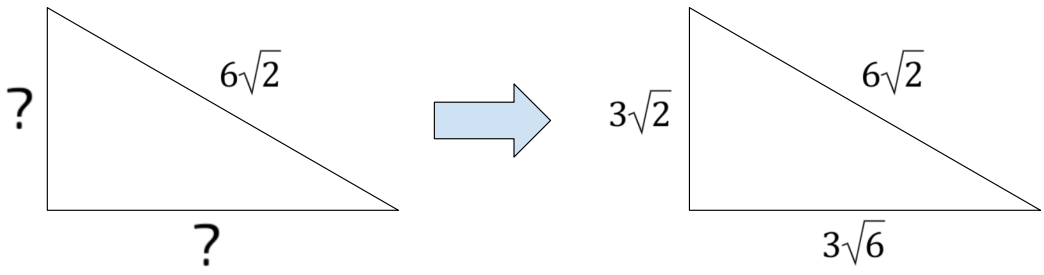
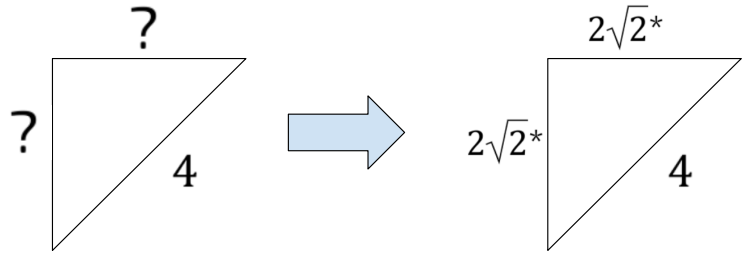
30-60-90:



45-45-90:



*Rationalizing the denominator

<u>What is it?</u>

Rationalizing the denominator is the process of rewriting a fraction so that the denominator (the bottom number) does not have a radical (square root) in it.

$\frac{4}{\sqrt{2}} \Rightarrow 2\sqrt{2}$

<u>How is it done?</u>

It is done by multiplying the fraction by the radical over itself. This cancels out the square root and will leave an integer in the denominator.

$\frac{4}{\sqrt{2}} \bullet \frac{\sqrt{2}}{\sqrt{2}} \rightarrow \frac{4\sqrt{2}}{\sqrt{2} \bullet \sqrt{2}} \rightarrow \frac{4\sqrt{2}}{2} \rightarrow 2\sqrt{2}$

Since $\frac{\sqrt{2}}{\sqrt{2}} = 1$, this does not change the value of the original expression.

<u>Why is it used?</u>

Rationalizing the denominator makes the expression easier to work with in many cases, such as when finding a common denominator or simplifying expressions.

Researched & Developed by: Pi-Rates Add to your knowledge