

$A^2 + B^2 = C^2$ where A and B are the two legs of the right triangle and C is the hypotenuse. If we substitute the numbers from a 3-4-5 triangle into this formula, we then have:

$$3^2 + 4^2 = 5^2 \quad \text{or} \quad 9 + 16 = 25$$

Of course any lengths could be used to create the right angle for construction – as long as they were correct when applied to the Pythagorean theorem. But practically speaking, most other numbers would not work well. First of all, finding a square root on the job site would often require a person to carry a calculator around. Secondly, once a square root was found, it often could not be accurately located on a tape-measure or other measuring tool.

For example; suppose the carpenter chose to use triangle legs of 6 and 7 feet. Using the Pythagorean theorem we would find:

$$6^2 + 7^2 = C^2 \quad \text{or} \quad 36 + 49 = C^2 \quad \text{or} \quad 85 = C^2$$

Solving for C would produce a hypotenuse of 9.2195444 feet – which would be very difficult to calculate mentally or locate on a tape-measure that is graduated in 8ths or 16th of an inch.

Therefore using triangle dimensions of 3, 4 and 5 is easy to remember (no calculations needed), will always produce a perfect right angle and is easily found with common measuring tools.