

PYTHAGOREAN THEOREM

What is the Pythagorean Theorem?

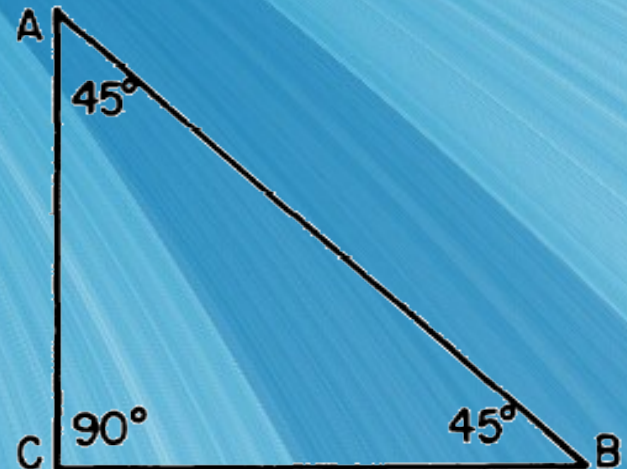
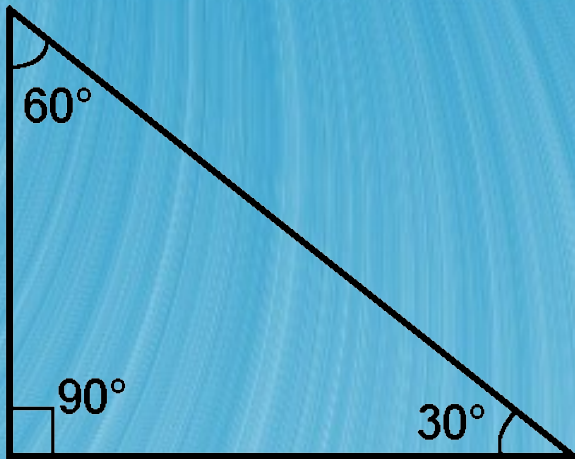
- ◆ The theorem that the sum of the squares of the lengths of the sides of a right triangle is equal to the square of the length of the hypotenuse.(answer.com, 1)

What?

- ◆ In simpler terms the Pythagorean Theorem is a formula that is used when trying to find a missing side in a right triangle.
- ◆ The formula is $a^2 + b^2 = c^2$

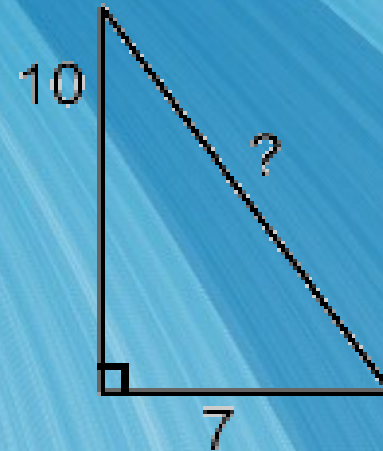
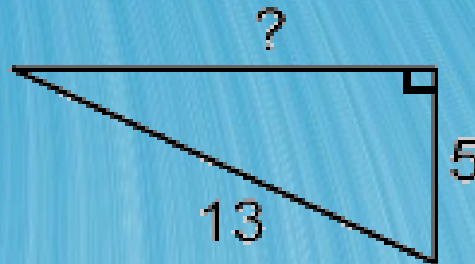
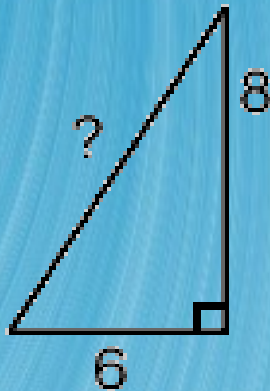
Review

- ♦ In order to use the theorem you must know what a right triangle is.
- ♦ A right triangle is a triangle that has an angle of 90° .



How to use the Pythagorean Theorem

- ♦ First make sure the triangle, you are dealing with, is a right triangle.
 - ♦ Make sure you have two side measurements of the triangles you are dealing with.



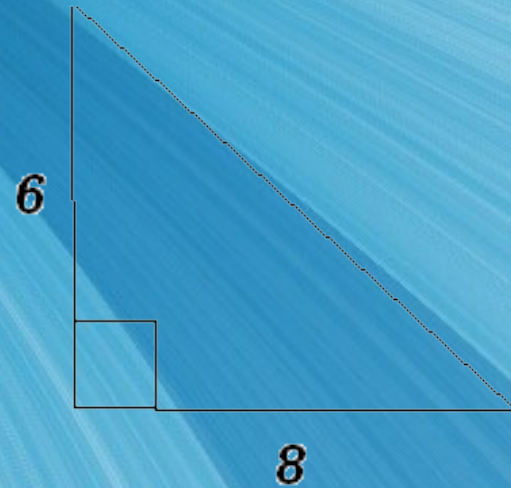
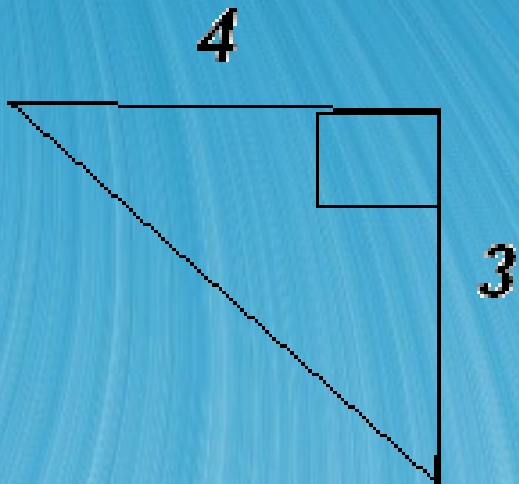
How to use the Pythagorean Theorem

- ◆ Establish what numbers go with the variables A , B and C in the formula
- ◆ Plug the numbers into the formula.

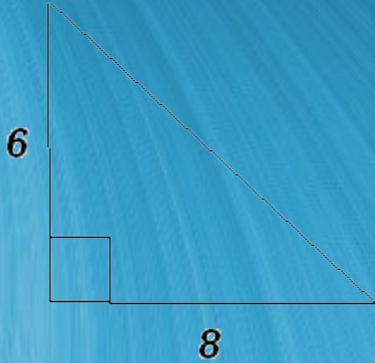
Quick Hints

- ◆ C in the Pythagorean Theorem is always the hypotenuse.
- ◆ Review; The hypotenuse is the side opposite of the right angle in a right triangle.
- ◆ A and B in the Pythagorean Theorem are the two remaining sides. No specific side for either variable.

Practice the Basics



Step One



$$A=6$$

$$B=8$$

$$C=x$$

- ♦ Step one plug the numbers into the formula.

$$6^2+8^2=x^2$$

Step Two

- ♦ Step two, take the square of A and B.

$$6^2=36 \quad 8^2=64$$

- ♦ Now plug the numbers back into the formula.

$$36+64=x^2$$

Step Three

- ◆ Step three, add A and B.

$$36+64=100$$

- ◆ Now plug the solution back into the formula.

$$100=x^2$$

Step Four

- ♦ Step four use a opposite operation to eliminate the square in x^2 by taking the square root of the sum of A and B.

 Square root of $100=10$

- ♦ Plug the solution into the formula.

$$10=x$$

Final Step

- ♦ The final step is to check your work. Check your work by plugging the answer back into the original formula to make sure the answer is correct.

$$6^2 + 8^2 = 10^2$$

$$✓ 36 + 64 = 100$$

$$100 = 100$$

In Conclusion

- ♦ The Pythagorean Theorem is an important formula and **needs** to be memorized.