

## Geometry 8.2

Use the pythagorean theorem\*

\*8th grade standard

Use the converse of the pythagorean theorem

$$a^2 + b^2 = c^2$$

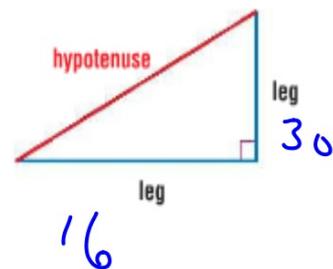
leg

hypotenuse

converse

integer

pythagorean triple

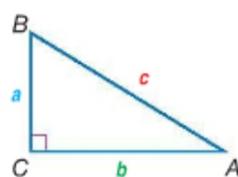


activ: Pythagorean theorem game

### Theorem 8.4 Pythagorean Theorem

**Words** In a right triangle, the sum of the squares of the lengths of the legs is equal to the square of the length of the hypotenuse.

**Symbols** If  $\triangle ABC$  is a right triangle with right angle  $C$ , then  $a^2 + b^2 = c^2$ .

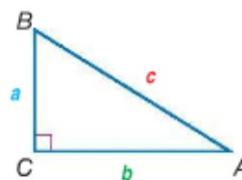


**2 Converse of the Pythagorean Theorem** The converse of the Pythagorean Theorem also holds. You can use this theorem to help you determine whether a triangle is a right triangle given the measures of all three sides.

**Theorem 8.5** Converse of the Pythagorean Theorem

**Words** If the sum of the squares of the lengths of the shortest sides of a triangle is equal to the square of the length of the longest side, then the triangle is a right triangle.

**Symbols** If  $a^2 + b^2 = c^2$ , then  $\triangle ABC$  is a right triangle.



You will prove Theorem 8.5 in Exercise 35.

$a^2+b^2 = c^2$  what is needed

the perfect amount: It's just RIGHT (get it?)

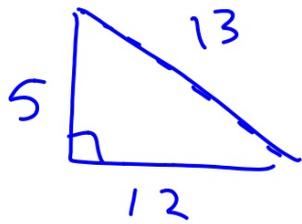
Classify:

Rt 5, 12, 13

A 5, 12, 12

Ob. 5, 12, 16

5, 12, 18 no  $\Delta$



$$5^2 + 12^2 = h^2$$

$$25 + 144 = h^2$$

$$169 = h^2$$

1. Can it make a triangle?
2. What is the perfect amount?
3. Answer the question.

$$16^2 + 30^2 = 34$$

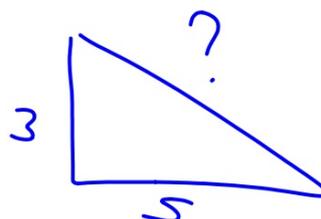
## Pythagorean Theorem Game

Roll 2 dice. These are the lengths of the LEGS of a right triangle. Calculate the HYPOTENUSE (round off as necessary) and move that many spaces.

$$9 + 25 = h^2$$

Follow directions on the game board.

If you land on a "??" space:  $34 = h^2$



- Draw a ?? card.
- Somebody else reads you the question.
- If correct, take a bonus roll (Use only 1 die)
- Your turn is now over (even if you land on another ?? space).

Go around twice to win. (Must answer a question correctly to win.)

Wed.

For Fri.

1 Paragraph + 2 questions

Reflection: Your comments, rules, game play, how to improve, etc.

2 Questions: Could be used on a ?? space

About right triangles and/or pythagorean theorem

Provide correct answers for your questions

WB 8.2 @ rac.