

Chapter 12

Section 5

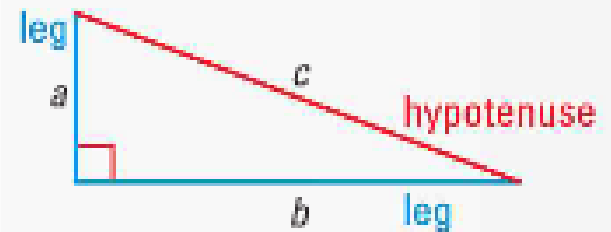
Pythagorean Theorem

Pythagorean Theorem

THE PYTHAGOREAN THEOREM

If a triangle is a right triangle, then the sum of the squares of the lengths of the legs a and b equals the square of the length of the hypotenuse c .

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



Examples:

1. $a = 3, b = 4, c =$

2. $a = 5, b = 10, c =$



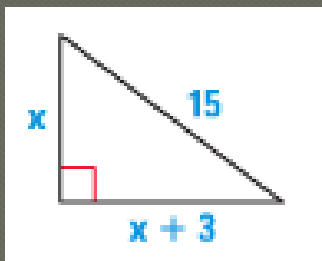
Examples

○ 3. $a = 4, c = 12, b =$

○ 4. $b = 5, c = 7, a =$

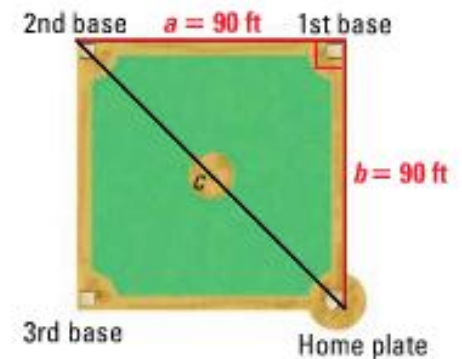
Examples:

5. A right triangle has one leg that is 3 inches longer than the other leg. The hypotenuse is 15 inches. Find the missing lengths.



Examples

6. The length of each side of a baseball diamond is 90 feet. What is the distance from home plate to second base?



Converse to the PT

CONVERSE OF THE PYTHAGOREAN THEOREM

If a triangle has side lengths a , b , and c such that $a^2 + b^2 = c^2$, then the triangle is a right triangle.

- Used to determine if the 3 given sides form a right triangle

Examples

1.) 5, 12, 13

2.) 6, 7, 8