Pythagorean Theorem

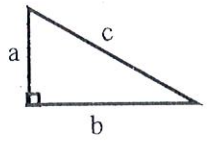
Big Idea: The theorem can be used to find a missing side to a right triangle if the other two sides are known.

Steps:

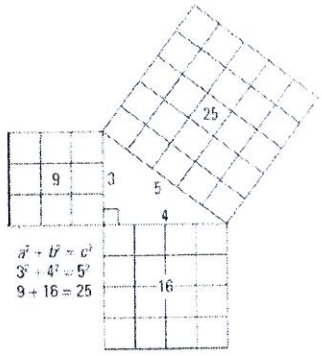
1. Analyze the problem.
2. Write the equation.
3. Fill in known information.
4. Solve for the unknown.

Pythagorean Theorem:

$\mathbf{a^2 + b^2 = c^2}$



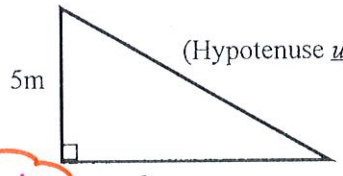
"c" is the hypotenuse



Examples:

Find the missing side of the triangles:

1. (Hypotenuse *unknown*)



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

$5^2+8^2=c^2$

$25+64=c^2$

$89=c^2$

$\sqrt{89}=c$ Exact

$9.4 \simeq c$ Approx

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

$6^2+b^2=13^2$

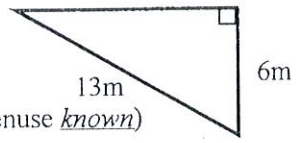
$36+b^2=169$

$-36 \quad -36$

$b^2=133$

$b=\sqrt{133}$ Exact

$b \simeq 11.5$ Approx



(Hypotenuse *known*)