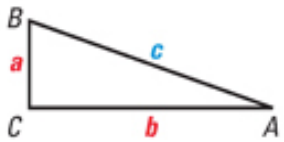
Honors Geometry

Notes Section 7.2

Use the COnverse of the Pythagorean Theorem

THEOREM 7.2 Converse of the Pythagorean Theorem

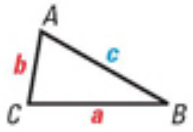
If the square of the length of the longest side of a triangle is equal to the sum of the squares of the lengths of the other two sides, then the triangle is a right triangle.



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

THEOREM 7.3

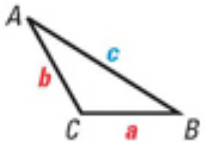
If the square of the length of the longest side of a triangle is less than the sum of the squares of the lengths of the other two sides, then the triangle is an acute triangle.



If $c^2 < a^2 + b^2$, then the triangle is acute.

THEOREM 7.4

If the square of the length of the longest side of a triangle is greater than the sum of the squares of the lengths of the other two sides, then the triangle is an obtuse triangle.

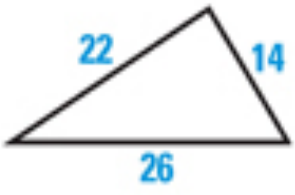


If $c^2 > a^2 + b^2$, then triangle ABC is obtuse.

EXAMPLE 1 Tell whether the given triangle is a RIGHT triangle.

a)

b)



EXAMPLE 2 Can segments with lengths of 4.3 feet, 5.2 feet, and 6.1 feet for a triangle? If so, classify the triangle as acute, right or obtuse.