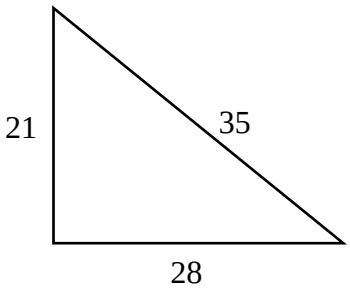
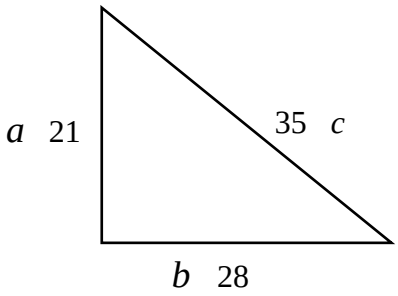
Determining if a Triangle has a Right Angle Practice

1. Is the triangle shown a right triangle?



Step 1: *Label the sides of the triangle.*



Step 2: *Calculate the square of the longest side.*
The longest side, c, is 35 units long.

$c^2 = 35^2$

$= 1225$ *square units*

Step 3: *Calculate the sum of the squares of the other 2 sides.*
The other two sides, a and b, are 21 units and 28 units long.

$a^2 + b^2 = 21^2 + 28^2$

$= 441 + 784$

$=1225$ *square units*

Because both sides of the equation are 1225 square units, the triangle is a right triangle.

Alternate Solution

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

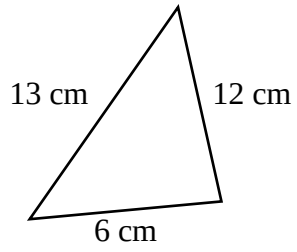
$$21^2 + 28^2 = 35^2$$

$$441 + 784 = 1225$$

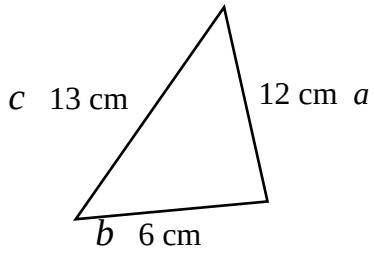
$$1225 = 1225$$

Because both sides of the equation are 1225 square units, the triangle is a right triangle.

2. Is the triangle shown a right triangle?



Step 1: *Label the sides of the triangle.*



Step 2: *Calculate the square of the longest side.*

$c = 13\ cm$

$c^2 = 13^2$

$c^2 = 169\ cm^2$

Step 3: *Calculate the sum of the squares of the other 2 sides.*

$a = 12\ cm$ *and* $b = 6\ cm$

$a^2 + b^2 = 12^2 + 6^2$

$= 144 + 36$

$= 180\ cm^2$

This is not a right triangle because $169\ cm^2$ *and* $180\ cm^2$ *are not the same.*

Alternate Solution

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

$12^2 + 6^2 = 13^2$

$144 + 36 = 169$

$180\ cm^2 \neq 169\ cm^2$

This is not a right triangle because 169 cm^2 and 180 cm^2 are not the same.