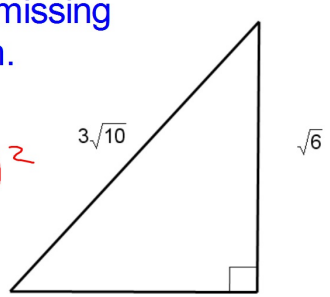
Find the exact value of the missing side in simplest radical form.



$x^2 + (\sqrt{6})^2 = (3\sqrt{10})^2$

$x^2 + 6 = 9 \cdot 10$

$x^2 + 6 = 90$

$\sqrt{x^2} = \sqrt{84}$

$84 = 4 \cdot 21$

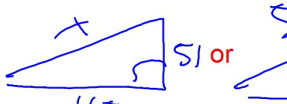
$x = 2\sqrt{21}$

Pythagorean Triples: 3 whole numbers that make the Pythagorean Theorem true.

The most well known Pythagorean Triple is 3,4,5

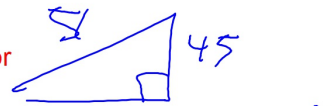
You are given two numbers of a Pythagorean Triple. Find the third number.

1. 45,51, 24



$45^2 + 51^2 = x^2$

$x = 68.01$ ✗



$x_{51}^2 = 45^2 + x^2$

$x = 24$ ✓

2. 12,16, 20

$12^2 + 16^2 = x^2$

$144 + 256$

$\sqrt{400} = \sqrt{x^2}$

$20 = x$ ✓

You are given two numbers of a Pythagorean Triple. Find the third number.

27,365, 364

$27^2 + 365^2 = x^2$

$133{,}954 = x^2$

$365.997 = x$ ✗

$27^2 + x^2 = 365^2$

$x^2 = 132{,}496$

$x = 364$ ✓

You have a bat that is 33 inches long and want to store it by placing it in the bottom of a box that has the following dimensions for the bottom: 26in by 20in

Will the bat fit?

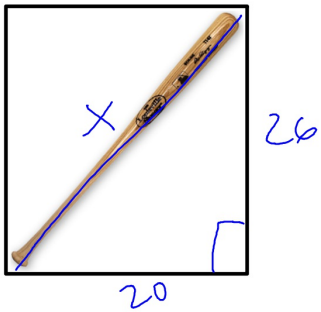
$X^2 = 20^2 + 26^2$

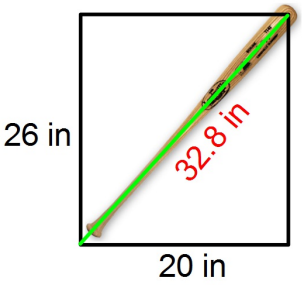
$X^2 = 400 + 676$

$X^2 = 1076$

$X = 32.8$

No, the bat won't fit. The diagonal is shorter than the bat.

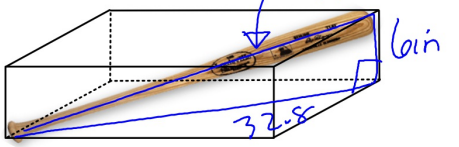




If the box is 6 in tall will it fit if you place it diagonally as shown below?

$32.8^2 + 6^2 = x^2$

$33.34'' = x$



Yes, it will fit this way because the diagonal measures 33.34 inches.