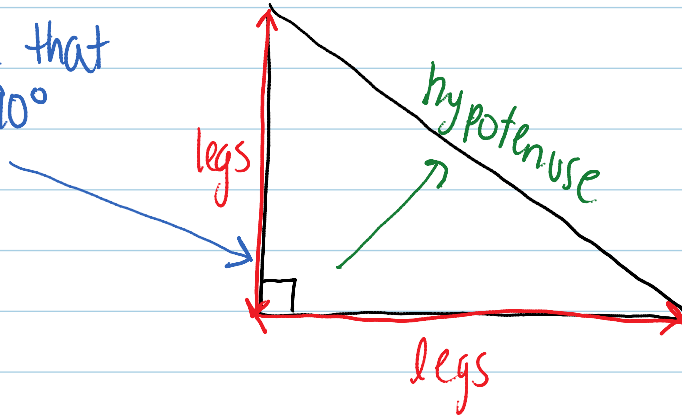


The Pythagorean Theorem

December-12-13
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The pythagorean theorem states the relationship between the sides of a right triangle.

A triangle that has a 90° angle

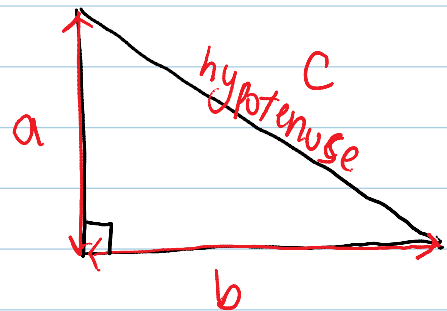


the longest side
the side opposite the 90° angle is always called the hypotenuse

the other 2 sides of the triangle are called legs.

The pythagorean theorem states that in any right triangle, the sum of the squares of the lengths of the legs is equal to the square of the length of the hypotenuse.

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

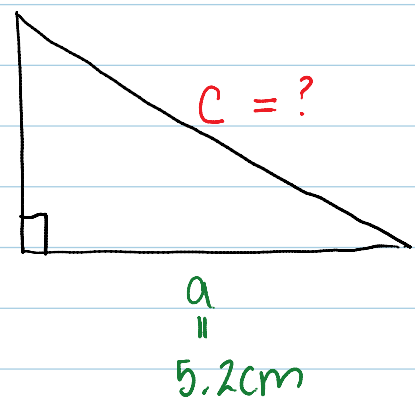


Ex. #1

$$a^2 + b^2 = c^2$$
$$(5.2)^2 + (3.8)^2 = c^2$$

$$27.64 + 14.44 = c^2$$

$$3.8\text{cm} = b$$

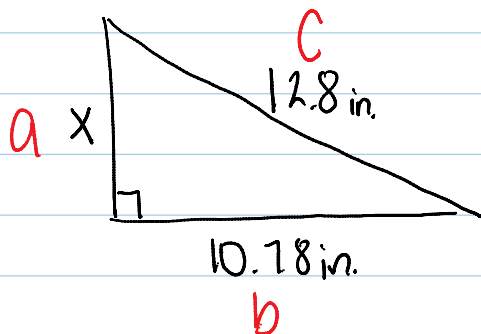


$$\sqrt{41.48} = \sqrt{c^2}$$

square root both sides!

$$6.44 \text{ cm} = c$$

Ex. #2



$$a^2 + \cancel{b^2} = c^2 - b^2$$

$$a^2 = c^2 - b^2$$

$$a^2 = 12.8^2 - 10.18^2$$

$$a^2 = 163.84 - 103.6324$$

$$\sqrt{a^2} = \sqrt{60.2076}$$

$$a = 7.76 \text{ cm}$$