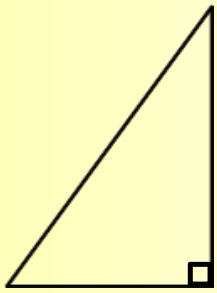
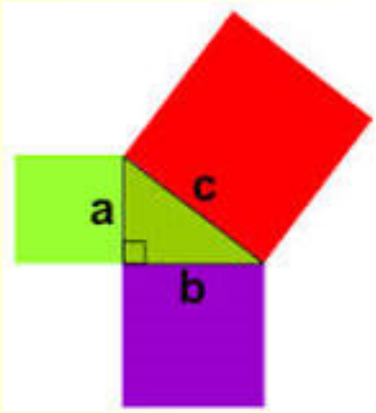
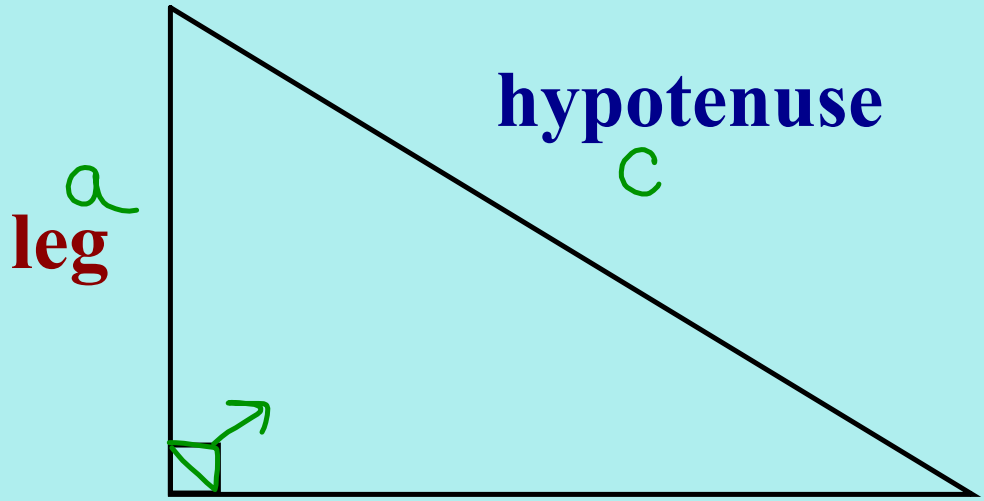
Chapter 7:

Right Triangles & Trigonometry





Parts of a Triangle:



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

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

Pythagorean Theorem

Longest Side (Hypotenuse)

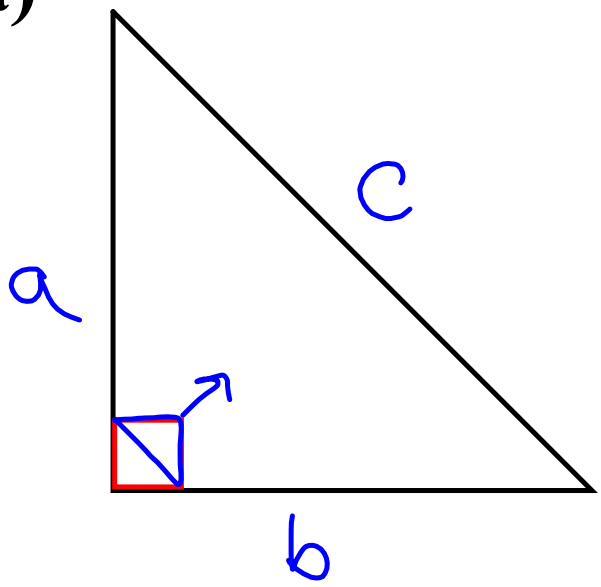
$c^2 = a^2 + b^2$

Short Side (Leg)

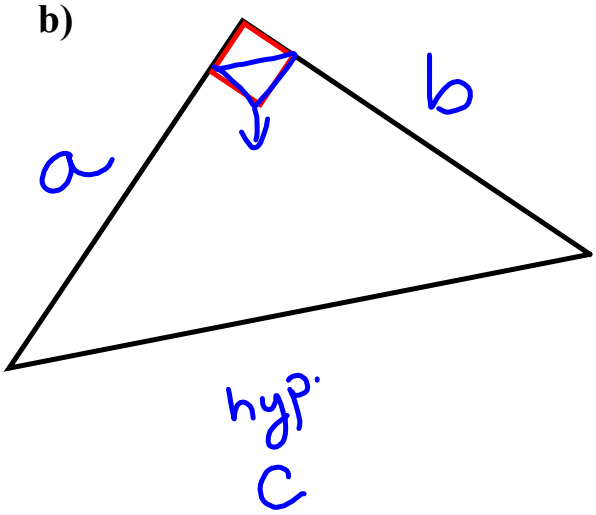
$a^2 = c^2 - b^2$

C = Hypotenuse

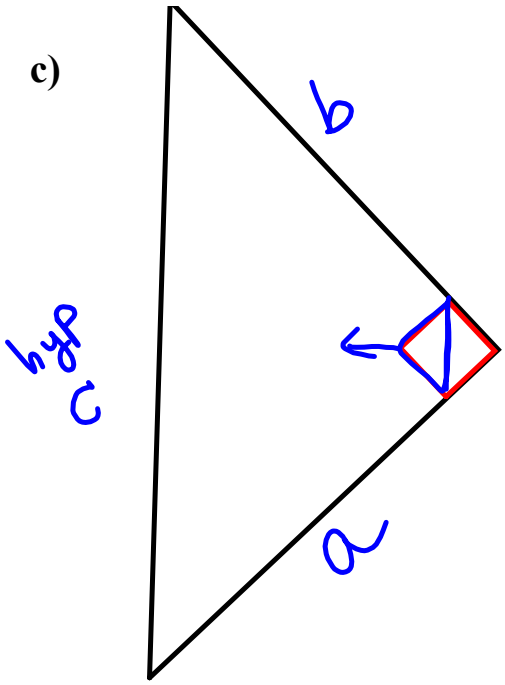
a)



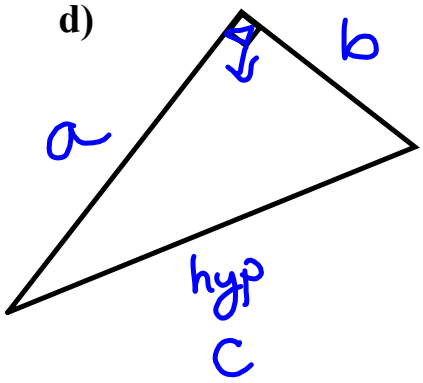
b)



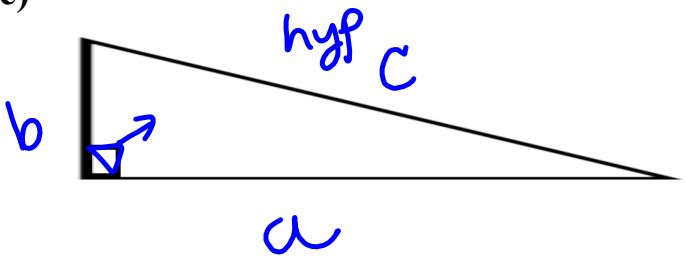
c)



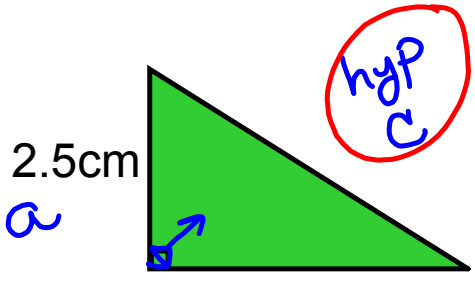
d)



e)



Determine the unknown length.



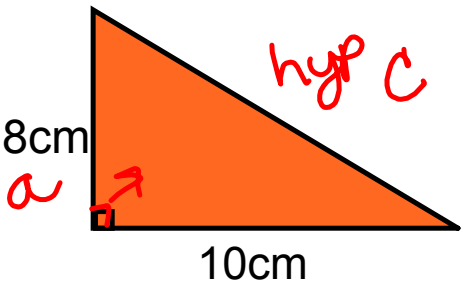
$c^2 = a^2 + b^2$

$c^2 = 2.5^2 + 4.1^2$

$c^2 = 6.25 + 16.81$

$\sqrt{c^2} = \sqrt{23.06}$

$c = 4.8$



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

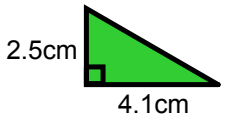
$8^2 + 10^2 = c^2$

$64 + 100 = c^2$

$\sqrt{164} = \sqrt{c^2}$

$c = 12.8$

Determine the unknown length.



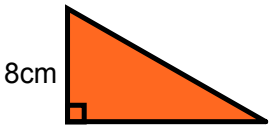
$c^2 = a^2 + b^2$

$c^2 = 2.5^2 + 4.1^2$

$c^2 = 6.25 + 16.81$

$c^2 = 23.06$

$c = 4.8$ cm



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

$c^2 = 8^2 + 10^2$

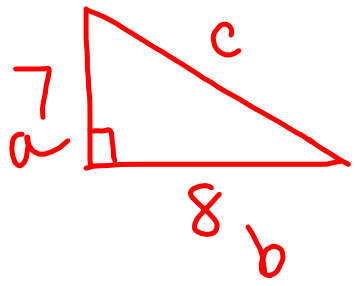
$c^2 = 64 + 100$

$c^2 = 164$

$c = 12.8$

Example #1

leg = 8 cm
leg = 7 cm
hypotenuse = ?



Solve:

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

$c^2 = \quad ^2 + \quad ^2$

$c^2 = 7^2 + 8^2$

$c^2 = 49 + 64$

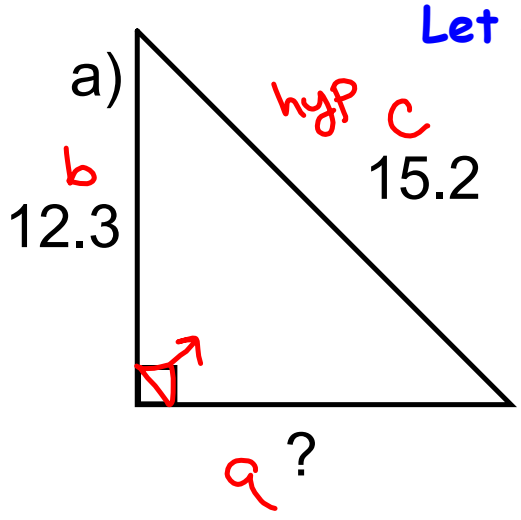
$\sqrt{c^2} = \sqrt{113}$

$c = 10.6$

Short Side (Leg)

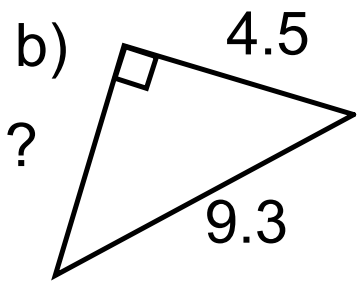
$$a^2 = c^2 - b^2$$

Let a be the one you are looking for:

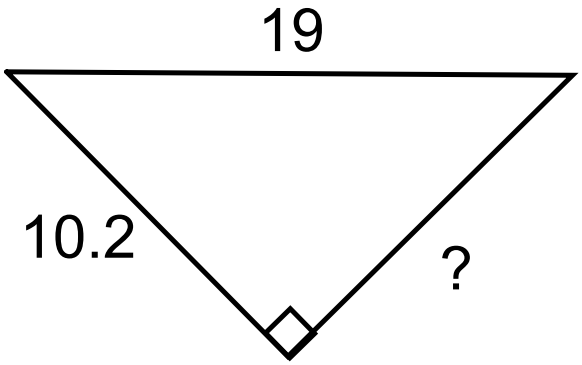


$$a^2 = c^2 - b^2$$
$$a^2 = 15.2^2 - 12.3^2$$
$$a^2 = 231.04 - 151.29$$
$$\sqrt{a^2} = \sqrt{79.75}$$
$$a = 8.9$$

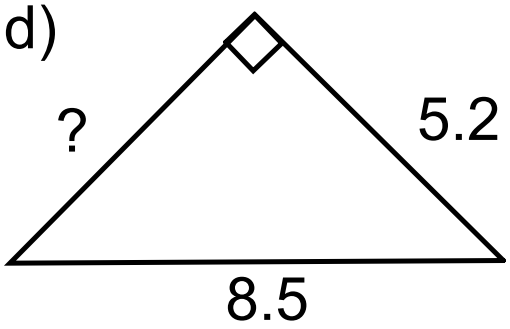
b)



c)



d)



Real Life Square Roots!!

A ladder is 6.1 m long.

The distance from the base of the ladder to the wall is 1.5 m.

Calculate how far up the wall the ladder will reach.