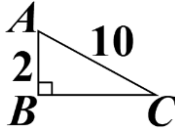


Pythagorean Theorem

Figures are not drawn to scale

Solving for a Missing Side without using angles

Determine BC.



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

c is the hyp (a and b are adj & opp).

AC is the hyp, so c = 10. I choose to make a = 2 & b = BC.

$$(2)^2 + (BC)^2 = (10)^2$$

$$4 + (BC)^2 = 100$$

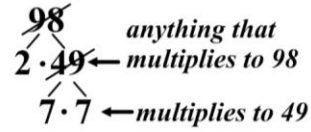
$$(BC)^2 = 98$$

$$BC = \sqrt{98}$$

Simplify the radical as much as you can (see right).

$$BC = 7\sqrt{2}$$

Simplifying Radicals



$\sqrt{98} = \sqrt{2 \cdot 7 \cdot 7}$ *In a couple, one must sacrifice itself so the other can be free.*
Singles never get to go out.

$$\sqrt{98} = 7\sqrt{2}$$

Once the sacrifice is made, multiply to simplify, if needed.

Shortcut for Pythagorean Triples

If you notice that two of a triangle's sides are in a Pythagorean Triple, then the third side must be the third number.

The most commonly used triples are:

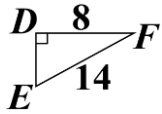
3, 4, 5

5, 12, 13

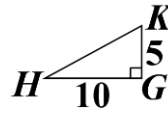
8, 15, 17

7, 24, 25

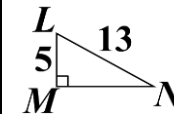
1. Determine DE.



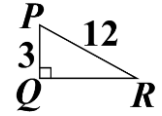
2. Determine HK.



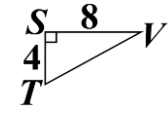
3. Determine MN.



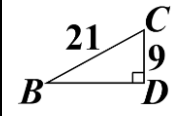
4. Determine QR.



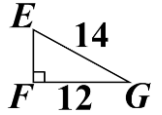
5. Determine TV.



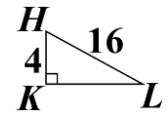
6. Determine BD.



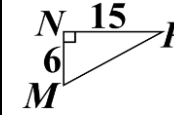
7. Determine EF.



8. Determine KL.



9. Determine PM.



Pythagorean Theorem Answers

1. $DE = 2\sqrt{33}$	2. $HK = 5\sqrt{5}$	3. $MN = 12$	4. $QR = 3\sqrt{15}$	5. $TV = 4\sqrt{5}$
6. $BD = 6\sqrt{10}$	7. $EF = 2\sqrt{13}$	8. $KL = 4\sqrt{15}$	9. $PM = 3\sqrt{21}$	