

## HW: THE CONVERSE OF THE PYTHAGOREAN THEOREM

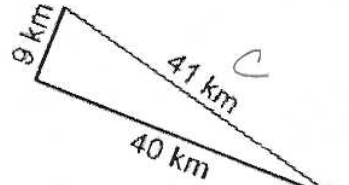
Created for you by Ms. Nhotsoubarh

1. Determine if the triangle shown below represents a right triangle. Show work to support your answer.

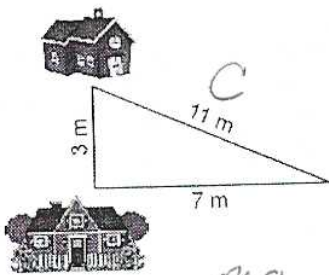
$$a^2 + b^2 = c^2$$
$$9^2 + 40^2 = 41^2$$
$$81 + 1600 = \downarrow$$

$$1681 = 1681 \checkmark$$

Yes, this is a right  $\Delta$  b/c the measurements satisfies the Pythagorean Thrm.



2. On Monday morning Marie walked to school. Afterwards she went with some friends to get ice cream, and then she walked back home. Determine if her path represents a right triangle.



$$a^2 + b^2 = c^2$$
$$3^2 + 7^2 = 11^2$$

$$9 + 49 = \downarrow$$

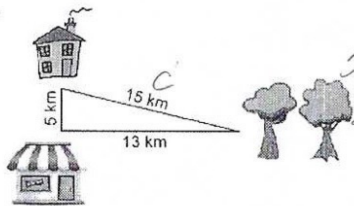
$$58 \neq 121$$

No, this is not a right  $\Delta$  b/c the sum of the squares of the legs is not equal to the square of the hypotenuse.

Name: \_\_\_\_\_  
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Glue on page 51

3. Angie leaves her house for a jog. Her path to the store, the park, and then back home is shown below. Does her path represent a right triangle?



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

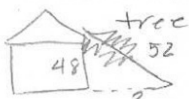
$$5^2 + 13^2 = 15^2$$

$$25 + 169 = \downarrow$$

$$194 \neq 225$$

no, this is not a right  $\Delta$   
 b/c the measurements  
 does not satisfy the  
 Pythagorean theorem.

4. During a storm, a 52-foot tree falls toward a house. The top of the tree leans against the house 48 feet above the ground. What is the distance on the ground from the house to the base of the tree? Draw a diagram.



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

$$48^2 + b^2 = 52^2$$

$$2304 + b^2 = 2704$$

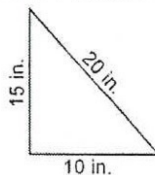
$$\begin{array}{r} 2304 + b^2 = 2704 \\ -2304 \quad -2304 \\ \hline \end{array}$$

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

$$b = 20 \text{ ft}$$

5. Griffin and Evan each drew a triangle in their notebook. Determine if their triangles are right triangles.

Griffin's triangle



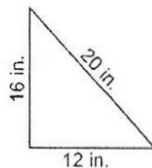
$$a^2 + b^2 = c^2$$

$$15^2 + 10^2 = 20^2$$

$$225 + 100 = \downarrow$$

$$325 \neq 400$$

Evan's triangle



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

$$16^2 + 12^2 = 20^2$$

$$256 + 144 = \downarrow$$

$$400 = 400$$

6. A pilot in the sky sees another plane about to take off 500 meters away. The base of the airplane in the sky is 400 meters from the grounded plane. How high up is the plane from the ground?

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

$$a^2 + 400^2 = 500^2$$

$$a^2 + 1600 = 2500$$

$$\begin{array}{r} a^2 + 1600 = 2500 \\ -1600 \quad -1600 \\ \hline \end{array}$$

$$\sqrt{a^2} = \sqrt{900}$$

$$a = 30 \text{ m}$$

