# Pythagorean Thm. Converse
Practice Problems

Lesson 8.4

Name: _____

Answer the following questions.

1. What is the Pythagorean Theorem in your own words?

2. What does the Pythagorean Theorem allow us to do?

3. What is the Pythagorean Theorem Converse in your own words?

4. What does the Pythagorean Theorem Converse allow us to do that is different than the regular theorem?

5. The door to your bathroom has never closed well. In fact, every time you try to use the bathroom, the cats bust open the door because it simply won't latch. You look at the door and it appears that the door frame is slightly tilted. The person who built your house claims that can't be true because he measured your door frame and found it be an exact right angle. He claims what you're seeing is an optical illusion.
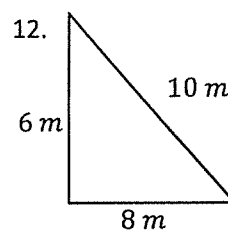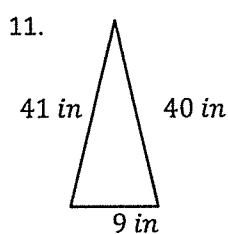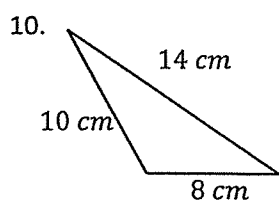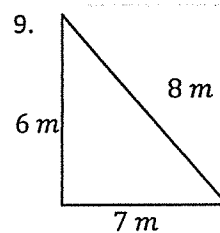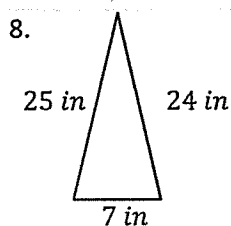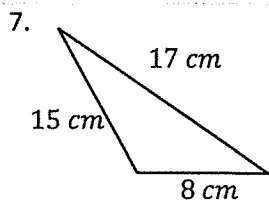

32 in

86 in

81 in

a. Without having a protractor, what could you do to see if he is correct without having a protractor?

b. If you knew the door frame measurements were as pictured to the right, did the builder install your door frame correctly at a right angle?
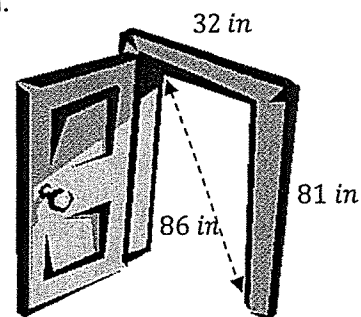
6. Bob is building a triangular garden and needs fencing around it to keep the rabbits out. He has one section of fence measuring 40 ft, another measuring 42 ft, and a third measuring 58 ft. Bob says that after the fence is complete it will make a right triangle using the following argument: "First, I'll set-up the longest section of fence. Next, I'll attach the other two sections to either end of the long one. Finally, I'll swing the two shorter sections together. Since they must meet together, that makes it a right triangle."

a. Is Bob correct that the garden fence will make a right triangle?

b. If so, is Bob's argument correct for why it will make a right triangle?

c. What would be a better argument?

Use the Pythagorean Thm. Converse to classify the following triangles!

7.

15 cm, 17 cm, 8 cm

8.

25 in, 24 in, 7 in

9.

6 m, 8 m, 7 m

10.

10 cm, 14 cm, 8 cm

11.

41 in, 40 in, 9 in

12.

6 m, 10 m, 8 m

13. $a = 12 \, ft$
    $b = 16 \, ft$
    $c = 25 \, ft$

14. $a = 12 \, km$
    $b = 35 \, km$
    $c = 37 \, km$

15. $a = 10 \, mm$
    $b = 24 \, mm$
    $c = 27 \, mm$

16. $a = 20 \, ft$
    $b = 21 \, ft$
    $c = 29 \, ft$

17. $a = 5 \, km$
    $b = 12 \, km$
    $c = 17 \, km$

18. $a = 5 \, mm$
    $b = 12 \, mm$
    $c = 13 \, mm$

298