Pythagorean Theorem Word Problems

Draw a picture and then use the pythagorean theorem to solve for the missing side.

1. The bottom of a ladder must be placed 3 feet from a wall. The ladder is 10 feet long. How far above the ground does the ladder touch the wall?

2. A soccer field is a rectangle 100 meters wide and 130 meters long. The coach asks players to run from one corner to the other corner diagonally across. What is that distance?

3. How far from the base of the house do you need to place a 15-foot ladder so that it exactly reaches the top of a 12- foot tall wall?

4. What is the length of the diagonal of a 10 cm by 15 cm rectangle?

5. The diagonal of a rectangle is 25 in. The width is 15 inches. What is the length?

6. Two sides of a right triangle are 8 and 12. Find the hypotenuse.

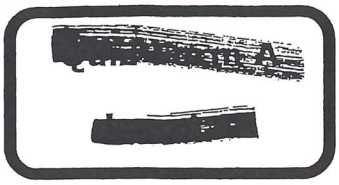
7. A baseball diamond is a square that is 90 feet on each side. What is the distance a catcher has to throw the ball from home to second base?

8. David leaves the house to go to school. He walks 200m west and 125m north. How far away is he from his starting point? (the diagonal)

9. A park is in the shape of a rectangle 8 miles long and 6 miles wide. How much shorter is your walk if you walk diagonally across the park than along the two sides of it?

Name _____ Date _____

Pythagorean Theorem Proofs and its Converse



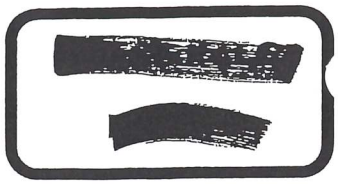
1. Roy drives his car 15 km west and then 120 km north. How far is he from his starting point?	6. If a leg of a triangle is 15 cm long, and another leg is 30 cm long, what is the length of the hypotenuse?
2. Using the Pythagorean Theorem, find the area of an equilateral triangle whose side measures 10 units.	7. A box is in the shape of a square of sides 16 cm. If you slice it diagonally, what would be the hypotenuse of the slice?
3. If the legs of an isosceles right triangle are 12 inches long, approximate the length of the hypotenuse to the nearest whole number.	8. Find the height of an equilateral triangle whose side measures 36 cm.
4. A ladder 15 m long is leaning against the building. The foot of the ladder is 9 m from the base of the building. At what height does the ladder rest on the wall?	9. A triangle has sides with lengths of 5 m, 12 m and 13 m. Is it a right triangle?
5. The hypotenuse of a right triangle is 5 cm and its base is 3 m. What is the length of the other leg?	10. The legs of a right triangle measure at 6 m and 8 m. What is the length of the hypotenuse?

Score:

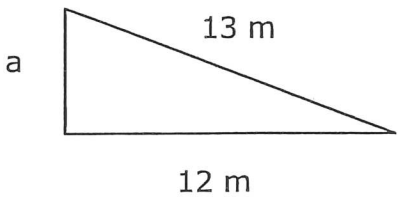
10	20	30	40	50	60	70	80	90	100

Name _____ Date _____

Pythagorean Theorem Proofs and its Converse



1. Find the length of the missing leg.

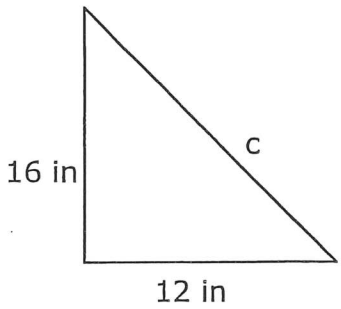


2. Richard is riding a boat. He drives 12 m east and then heads to 20 m north. How far is he from his starting point?

3. Using the Pythagorean Theorem, find the area of an equilateral triangle whose side measures 18 units.

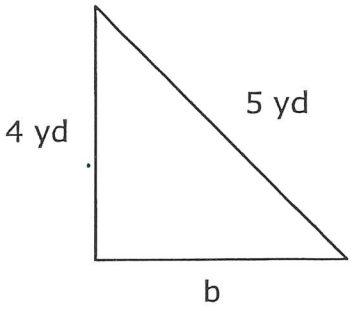
4. A triangle has sides with lengths of 8 meters, 15 meters and 17 meters. Is it a right triangle?

5. Find the length of the missing leg.



6. Mack is 9 miles due north of the airport, Ellen is 12 miles due east of the airport. How far apart are Mack and Ellen?

7. Find the length of the missing leg.



8. A cloth is in the shape of a square of sides 10 m. You cut it into a diagonal making two triangles. What is its hypotenuse of one of the triangles?

Score:

10	20	30	40	50	60	70	80