Pythagoras theorem

A. Choose the correct answer:	
1. Pythagoras Theorem is applicable to	
a) all triangles	b) equilateral triangles
c) isosceles triangles	d) right-angled triangles
2. In a right-angled triangle, the side opposite the right angle is called	
a) base	b) height
c) hypotenuse	d) perpendicular
3. If one side of a right triangle is 6 cm, the other is 8 cm, the hypotenuse is	
a) 10 cm	b) 12 cm
c) 14 cm	d) 15 cm
4. According to Pythagoras Theorem,	
a) hypotenuse ² = base + height	b) hypotenuse ² = base ² + height ²
c) hypotenuse = base × height	d) hypotenuse ² = base ² – height ²
5. A triangle with sides 5 cm, 12 cm, and 13 cm is	
a) isosceles	b) scalene
c) equilateral	d) right-angled
B. Write the Missing Terms to Complete the Sentences:	
1. Pythagoras Theorem states that _	= base ² + perpendicular ² .
2. The side opposite the right angle is called the	
3. A triangle with sides 7 cm, 24 cm, and 25 cm is a triangle.	
4. If base = 9 cm and height = 12 cm, then hypotenuse = cm.	
5. Pythagoras Theorem is used to check whether a triangle is or not.	

C. Mark each sentence with a True (✔) or False (X):

1. The Pythagoras Theorem applies to all types of triangles.

2. In Pythagoras Theorem, the square of the hypotenuse equals the sum of squares of the other two sides.

- 3. The longest side in a right triangle is called the hypotenuse.
- 4. A triangle with sides 3 cm, 4 cm, and 5 cm satisfies the Pythagoras Theorem.
- 5. If hypotenuse² = base² height², it satisfies the Pythagoras Theorem._____

D. Figure out the answers to these questions:

- 1. A right-angled triangle has one side 9 cm and the other 12 cm. Find the hypotenuse using Pythagoras Theorem.
- 2. Check whether a triangle with sides 8 cm, 15 cm, and 17 cm is a right-angled triangle.
- 3. Find the missing side if the hypotenuse is 13 cm and one side is 5 cm.
- 4. Using the Pythagoras Theorem, prove that a triangle with sides 6 cm, 8 cm, and 10 cm is a right triangle.
- 5. Draw a right triangle with base 5 cm and height 12 cm. Measure the hypotenuse using the theorem.

E. Challenge yourself with these questions:

- 1. Check whether a triangle with sides $\frac{10}{2}$ cm, $\frac{24}{2}$ cm, and $\frac{26}{2}$ cm is a right-angled triangle.
- 2. A ladder is leaning against a wall. If the distance from the wall to the foot of the ladder is 9 m and the height of the wall is 12 m, find the length of the ladder.
- 3. A triangle has a hypotenuse of 25 cm and one side of 7 cm. Find the length of the third side.
- 4. If the hypotenuse and one leg of a right triangle are known, how can you find the other leg.
- 5. Find three different sets of numbers that satisfy the Pythagoras Theorem.
- If two sides of right triangle are equal and the square of hypotenuse measures 132 cm2, find the length of each side.
- 7. Find the length of the diagonal of a rectangle whose sides are 15m and 28m.
- 8. A ladder is placed against a wall of a building, 16m above the ground. The foot of the ladder is 13m away from the bottom of the building. What is the length of the ladder?



F. Find the value of x in the given figures.