# MATHEMATICS

| Board – ICSE	Class – 9th	Topic – Pythagoras theorem

1. Prove the Pythagorean Theorem for a right-angle triangle having sides to be 3cm, 4cm and 5 cm.

2. The sides of a triangle are 5, 12 & 13 units. Check if it has a right angle or not.

3. In a right-angle triangle, the square on the hypotenuse is equal to the sum of the remaining two sides.

4. In the given diagram, AB = 3CD = 18 cm and 3BP = 4CP = 36 cm. Show that the measure of angle APD is 90°.
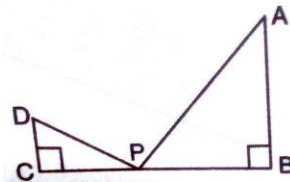
5. In the given figure, AD is perpendicular to BC produced. Prove that: $c^2 = a^2 + b^2 + 2ax$.
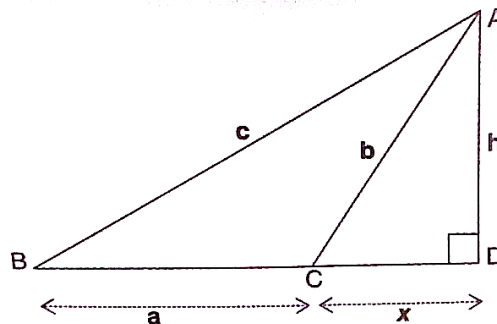
6. In triangle ABC, $\angle ACB = 90°, AB = c\ unit, BC = a\ unit, AC = b\ unit$, CD is perpendicular to AB and CD = p unit. Prove that $\frac{1}{p^2} = \frac{1}{a^2} + \frac{1}{b^2}$
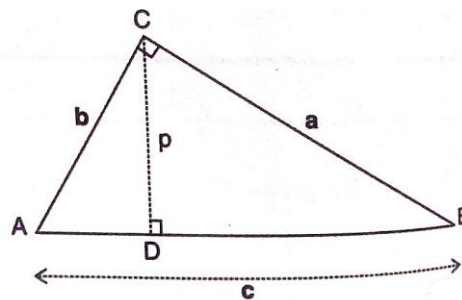
7. Prove that the sum of the squares on the diagonals of a parallelogram is equal to the sum of the squares on its sides.

8. ABC is an equilateral triangle; P is a point in BC such that BP : PC = 2 : 1. Prove that: $9AP^2 = 7AB^2$
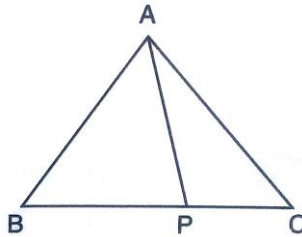
9. In the triangle ABC, AB = AC and BD is perpendicular to AC. Prove that: $BD^2 - CD^2 = 2CD \times AD$

10. ABC is an isosceles triangle in which AB = AC = 20 cm and BC = 24 cm. PQRS is a rectangle drawn inside the isosceles triangle. Given PQ = SR = y cm and PS = QR = 2x cm. prove that: $= 16 - \frac{4x}{3}$.