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Guess Test – UNIT: 5 (geometry)

1. State Pythagoras theorem.

2. State Thale's theorem.

3. P and Q are the points on the sides AB and AC respectively of triangle ABC. If AP = 3 cm, PB = 6 cm, AQ = 5 cm and QC = 10 cm, show that BC = 3 PQ.

4. Find the length of the tangent drawn from a point P whose distance from the centre of the circle is 25 cm. It is given that the radius of the circle is 7 cm.

5. Prove that the lengths of the two tangents drawn from an external point to a circle are equal.

6. Draw a circle of diameter 4 cm. Take a point P, 5 cm away from the centre of the circle. From P, draw a pair of tangents to the circle.

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7. State and prove converse of Pythagoras theorem.

8. Prove that the ratio of the corresponding altitudes of two similar triangles is equal to the ratio of their corresponding sides.

9. In an equilateral triangle, prove that the three times the square on one side is equal to four times the square of its altitude.

10. Prove that in two concentric circles, the chord of the larger circle, which touches the smaller circle, is bisected at the point of contact.

11. Construct a triangle ABC with BC = 4.2 cm, $\angle$B = 45° and altitude through A is 2.5 cm. Draw another triangle similar to this triangle with scale factor ½.

12. Prove that the internal bisector of an angle of a triangle divides the opposite side internally in the ratio of the sides containing the angle.

13. In a right triangle ABC, right angled at A with AB = 6 cm and AC = 8 cm. A circle with centre O is inscribed in it. Find r, the radius of the circle.

14. PA and PB are the two tangents to a circle with centre O in which OP is equal to the diameter of the circle. Prove that APB is an equilateral triangle.

15. If 'a' is the area of the of a right triangle and 'b' is one of the side sides containing the right angle, prove that the length of the altitude on the hypotenuse is $\dfrac{2ab}{\sqrt{b^4 + 4a^2}}$

16. Draw a circle of radius 4 cm. Draw a pair of tangents to this circle inclined at 120° to each other.

17. In ΔABC, AB = BC = CA. D is a point on BC such that BD = $\dfrac{1}{3}$ BC. Prove $9AD^2 = 7\,AB^2$.

18. A circle is inscribed in a quadrilateral ABCD. Prove AB + CD = BC + DA.