Practice Challenge - Subjective

Subject: Mathematics
Topic: Constructions Theory
Session 1

Class: X
1. Draw a circle of radius 6 cm. From a point 10 cm away from its centre, construct a pair of tangents to the circle and measure their lengths.

2. Let \( \triangle ABC \) be a right triangle in which \( AB = 6 \text{ cm} \), \( BC = 8 \text{ cm} \) and \( \angle B = 90^\circ \). BD is the perpendicular from B on AC. A circle through B, C, D is drawn. Construct the tangents from A to this circle.

3. Draw a right triangle in which the sides (other than hypotenuse) are of lengths 4 cm and 3 cm. Then construct another triangle whose sides are \( \frac{5}{3} \) times the corresponding sides of the given triangle.

4. Construct an isosceles triangle whose base is 8 cm and altitude 4 cm and then another triangle whose sides are 1.5 times the corresponding sides of the isosceles triangle.

5. Construct a triangle of sides 4 cm, 5 cm and 6 cm and then a triangle similar to it whose sides are \( \frac{2}{3} \) of the corresponding sides of the first triangle.

6. Draw a line segment of length 7.6 cm and divide it in the ratio 5 : 8 Measure the two parts.

7. Draw an isosceles triangle \( \triangle ABC \) in which \( AB = AC = 6 \text{ cm} \) and \( BC = 5 \text{ cm} \). Construct a triangle \( \triangle PQR \) similar to \( \triangle ABC \) in which \( PQ = 8 \text{ cm} \), Also justify the construction.

8. Draw a circle of radius 4 cm. Construct a pair of tangents to it, the angle between which is \( 60^\circ \). Also justify the construction. Measure the distance between the centre of the circle and the point of intersection of tangents.