

## Worksheet: Circles

Maharashtra State Board · Class 9 · Mathematics · 12 questions · 26 marks

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 26

**Q1.** A chord of length 16 cm is at perpendicular distance 6 cm from the centre. Find the radius. [1 mark]

**Q2.** An arc subtends an angle of  $100^\circ$  at the centre. What angle does it subtend at a point on the major arc? [1 mark]

**Q3.** In a circle, AB is a diameter and P is a point on the circle. What is  $\angle APB$ ? [1 mark]

**Q4.** In cyclic quadrilateral ABCD,  $\angle A = 80^\circ$ . Find  $\angle C$ . [1 mark]

**Q5.** In a circle, points A, B, C, D lie on the same arc. If  $\angle ACB = 40^\circ$ , find  $\angle ADB$ . [1 mark]

**Q6.** In a circle of radius 13 cm, a chord is at distance 5 cm from the centre. Find the length of the chord. [2 marks]

**Q7.** Two chords of a circle,  $AB = 16$  cm and  $CD = 12$  cm. The perpendicular from the centre to AB is 6 cm. Find the perpendicular distance from the centre to CD. (Radius is the same circle.) [2 marks]

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**Q8.** In a circle, an arc subtends an angle of  $130^\circ$  at the centre. Find the angles subtended at any point on (a) the major arc, (b) the minor arc. [3 marks]

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**Q9.** In cyclic quadrilateral ABCD,  $A : B = 2 : 3$ . If  $C = 70^\circ$ , find A, B, D. [3 marks]

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**Q10.** Two equal chords AB and CD of a circle intersect at point P inside the circle. Prove that  $PA = PD$  (or equivalently, the segments from P to corresponding endpoints are equal). [3 marks]

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**Q11.** Prove Theorem 4 for the case where the centre lies INSIDE  $\angle APB$  (where  $\angle APB$  is the inscribed angle). [4 marks]

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**Q12.** Prove: if a parallelogram is cyclic, it must be a rectangle. [4 marks]

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