



MATHS

BOOKS - CBSE COMPLEMENTARY MATERIAL MATHS (HINGLISH)

CIRCLES

Part A Mcq S

1. In AB and CD are two equal chords of a circle with center O. OP and OQ are perpendiculars

on chords AB and CD respectively. If

$\angle POQ = 150^\circ$ then $\angle APQ$ is equal to

A. 30°

B. 75°

C. 15°

D. 60°

Answer: B



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2. Angle in the same segment of a circle are equal.

A. Equal

B. Complementary

C. Supplementary

D. Vertically opposite angles

Answer: A



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3. If $AB = 12\text{cm}$, $BC = 16\text{ cm}$ and AB is perpendicular to BC , then the radius of the circle passing through the points A , B and C is

A. 6cm

B. 8cm

C. 10cm

D. 12cm

Answer: C



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4. AD is a diameter of a circle and AB is a chord. If $AD = 34\text{cm}$, $AB = 30\text{cm}$, the distance of AB from the centre of the circle is

A. 17cm

B. 15cm

C. 4cm

D. 8cm

Answer: D



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5. An equilateral triangle of side 9 cm is inscribed in a circle. Find the radius of the circle.

A. 3cm

B. $3\sqrt{2}cm$

C. $3\sqrt{3}cm$

D. 6cm

Answer: C



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6. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and $\angle ADC = 140^\circ$, then $\angle BAC$ is equal to

A. 80°

B. 30°

C. 50°

D. 40°

Answer: C



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7. (i) Find the length of a chord which is at a distance of 12 cm from the centre of a circle of radius 13cm.

(ii) The length of a chord is 16 cm of a circle of diameter 20 cm. find the perpendicular distance of this chord from the centre of the circle.

A. 5cm

B. 10cm

C. 12cm

D. 13cm

Answer: B



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Part A Fill In The Blanks

1. A segment of a circle in the region between an arc and a ___ of the circle.



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2. An arc of a circle is called a _____ if the ends of the arc on the ends of a diameter.



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3. Circles having the same centre and different radii are called _____ circles.



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Part A True False

1. The degree measure of a semi circle is 180°



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2. A circle divide the plane into three parts .



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3. A cirlce can have only a finite number of equal chords.



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4. Theorem 10.2 : If the angles subtended by the chords of a circle at the centre are equal, then the chords are equal.



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5. Through three collinear points a circle can be draw.



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6. If A, B, C and D are four points such that $\angle BAC = 45^\circ$ and $\angle BDC = 45^\circ$, then A, B, C and D are concyclic.



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7. A circle of radius 3 cm can be drawn through two points A, B such that $AB=6$ cm.



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8. If the sum of any pair of opposite angles of a quadrilateral is 180° ; then the quadrilateral is cyclic?

A. True

B. False

C. Can not determine

D. None of these

Answer: A



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9. A round pizza is cut into 4 equal pieces.

What does each piece represent?

A. Major arc

B. Sector

C. Segment

D. Semi circle

Answer: C



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10. AD is a diameter of a circle and AB is a chord. If $AD = 34\text{cm}$, $AB = 30\text{cm}$, the distance of AB from the centre of the circle is



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11. Given two concentric circles with centre O. A line cut the circle at A,B,C and D respectively. If $AB=10\text{cm}$, then find the length of CD.



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12. Prove that the diameter is the greatest chord in a circle.



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13. Circles having the same centre and different radii are called ___ circles.



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1. Prove that any cyclic parallelogram is a rectangle.



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2. A chord of a circle is equal to the radius of the circle. Find the angle subtended by the chord at a point on the minor arc and also at a point on the major arc



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1. If the non-parallel sides of a trapezium are equal, prove that it is cyclic.



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2. In an equilateral triangle prove that the centroid and the centre of the circumcircle (circumcentre) coincide.



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3. If two equal chords of a circle intersect within the circle, prove that the segments of one chord are equal to corresponding segments of the other chord.



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4. If the sum of any pair of opposite angles of a quadrilateral is 180^0 , then the quadrilateral is cyclic.



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Part D

1. Bisectors of angles A , B and C of a triangle ABC intersect its circumcircle at D , E and F respectively. Prove that the angles of the triangle DEF are $90^\circ - \frac{1}{2}A$, $90^\circ - \frac{1}{2}B$ and $90^\circ - \frac{1}{2}C$



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2. Prove that the sum of the angles in the four segments exterior to a cyclic quadrilateral is equal to 6 right angles.



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3. Let the vertex of an angle ABC be located outside a circle and let the sides of the angle intersect equal chords AD and CE with the circle. Prove that $\angle ABC$ is equal to half the

difference of the angles subtended by the chords AC and DE at



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4. Show that if two chords of a circle bisect one another they must be diameters.



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5. The quadrilateral formed by angle bisectors of a cyclic quadrilateral is also cyclic.



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6. Theorem 10.5 : There is one and only one circle passing through three given non-collinear points.



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7. The opposite angles of a cyclic quadrilaterals are supplementary



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8. The angle subtended by an arc of a circle at the centre is double the angle subtended by it any point on the remaining part of the circle.



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9. AB and AC are two chords of a circle of radius r such that $AB=2AC$. If p and q are the distances of AB and AC from the centre Prove that $4q^2 = p^2 + 3r^2$.



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Practice Test

1. Equal chords of a circle subtend equal angles at the centre.



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2. Theorem 10.11 : The sum of either pair of opposite angles of a cyclic quadrilateral is 180° .



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3. The angle subtended by an arc of a circle at the centre is double the angle subtended by it any point on the remaining part of the circle.



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