Circle theorems pdf class 9

The circular theorem includes the concept of tangents, sectors, angles, chord circle and evidence. The circle is the locus of all points in the plane that are equinoxes from a fixed point. A fixed point is called the center of a circle, and the constant distance between any point of the circle and its center is called a radius. The perimeter of the circle is known as a circle, and the area circled in the plane is its area. Touching perpendicular to the radius, at any point in the circle, through the point of contact. Let's learn more about the circle and its theorems here. What is the Circle Accord? The linear segment that connects any two points of the circle circle circle is known as a circle chord. The diameter is the largest chord that runs through the center of the circle. Consider a circle that has AB as diameter, THE CD is a chord of a circle, and the OE is a radius. See the picture below. Let's see the different circle theorems. Circles Class 9 Theorem In Class 9, students will face the basics of laps. Here we will study the various theorems based on the chord of the circle. Theorems will be based on these themes: The angle is subtended by a chord at a point perpendicular to the center to the chord equal chords and their distance from the corner of the center subtended by the arc of the cycle circle of the four-sided Now let's learn all the circle of theorem and evidence. Circle theorem and the evidence theorem 1: Two equal chords of the circle are divided by equal angles in the center of the circle. Proof: Given the ΔAOB and ΔPOS, AB th PL (Equal Chords)..... (1) OA and OPH ER (Radius Circle) ..... (2) From eq 1 and 2, we get; ΔAOB ≅ ΔPOS (SSS Congruence Axiom) Thus, CPCT (appropriate parts of congruent triangles) we receive; ∠AOB and ∠ are therefore proven. Converse theorems 1: If the two corners tilted in the center by two chords are equal, the chords are the same length. Proof: Considering the ΔAOB and ΔPOS, ∠AOB and ∠POS (Equal Angle, bent in the center of O)..... (1) OA and OP th Oz (Radius of the same circle) ..... (2) From eq. 1 and 2, we get; ΔAOB ≅ ΔPOS (SAS Axiom of Congruence) Hence AB TH (CPCT) Theorem 2: Perpendicular to the chord if taken from the center of the circle. In the above figure, according to the theoreme, OD ⊥ AB, hence AD and DB. Proof: Considering ΔAOD and ΔBOD, ∠ADO and ∠BDO 90 (OD ⊥ AB)..... (1) OA and OB (Radius Circle) ..... (2) OD (Common Side) ..... (3) From eq. (1), (2) and (3), we get; ΔAOB ≅ ΔPOS (R.H.S. Congruence) Thus, AD and DB (by CPCT) Converse theorem 2: A straight line passing through the center of the circle to strike a chord perpendicular to the chord. Proof: Considering ΔAOD and ΔBOD, AD and DB (OD bisects AB) O.A. th OB (Radius Circle)..... (2) OD (Common Side)..... (3) From eq. 1, 2 and 3, we get; ΔAB ≅ ΔPOS (by SS axiom) hence ∠ADO - ∠BDO 90 (by CPCT) Theorem 3: Equal ring chords are equally calm (equal distance) from the center of the circle. Construction: Join OB and OD Proof: Considering in ΔOPB and ΔO'D BP No 1/2 AB (Perpendicular chord splits it)..... (1) RH 1/2 CD (Perpendicular chord, shares it) ..... (2) AB CD (Data) BP (from eq 1 and 2) OB (OD (Radius of the same circle) ∠OPB - ∠ODD 90 (OP ⊥ AB and OP ⊥ CD) ΔOPB ≅ ΔO'D (by R.H.S Axiom Congruent) Hence, Therefore, OP NO (by CPCT) Converse theorems 3: The chords of the circle, which are at equal distances from the center are equal Δ Δ in length, is also true. ∠ ∠..... (2) OB and OD (Radius of the same circle)..... (3) Thus, from eq. 1, 2 and 3, we get; ΔOPB ≅ ΔO'D (by R.H.S Axiom of Congruence) BP and D' (by CPCT) 1/2 AB 1/2 CD (Perpendicular to the center corrodes the chord) Hence, theorem AB and CD 4: Measuring angles, tilted to any point on the circumference of the circle from the same arc, equal to half of the angle in the same center of the arc. From the above figures, ∠AOB No. 2∠APB Building: Join the PD passing through center O Proof: In ΔAOP, OA OP (Radius of the same circle) ..... (1) ∠OAP and ∠OPA (Corners opposite the equal sides of the triangle)..... (2) ∠AOD ∠OAP and ∠OPA (Outer Corner of the Property Triangle)..... (3) Hence, from eq. 2 and 3 we get; ∠AOD No 2∠OPA ..... (4) Similarly in ΔBOP, Outer Corner, ∠BOD No. 2 ∠OPB ..... (5) ∠AB ∠AOD and ∠BOD from eq. 4 and 5, we get; ∠AOB No. 2∠OPA 2∠OPB - ∠AOB No. 2 (∠AOP) - ∠OB) - ∠AOB 2∠APB Therefore, proven. Theorem 5: Opposite angles in the cyclical four-sided are optional. Proof: Suppose for the ABC arc, ∠AOC No. 2∠ABK No. 2 (Theorem 4)..... (1) Consider the arcs of ADC, Reflex ∠AOC No. 2 ∠ADC No. 2 (Theorem 4) ..... (2) ∠AOC - reflex ∠AOC - 360 From eq. 1 and 2, we get; 2 ∠ABK 2∠ADC - 360 - 2 - 2 360 - th 180 Class 9 Mathematical Circles - Get here Notes for Class 9 Circles. Candidates who are ambitious to qualify for a Class 9 with a good score can check out this article for notes. This is only possible when you have the best cbsE class 9 math training material and a smart training plan. To help you with this, we're here with notes. I hope these notes will help you understand important topics and remember the key points for the exam point of view. Below we provided Grade 9 Mathematics Notes for Theme Circles Class: 9thSubject: MathsTopic: CirclesResource: CBSE Notes Class 9 Mathematics Circles Candidates who are chasing in Grade 9 are encouraged to review notes from this post. With Notes, candidates can plan their Strategy for a certain weaker section of the subject and study it diligently. So, go ahead and check out the important notes for Class 9 Mathematics Circles from this article. CIRCLES AND ITS RELATED TERMS The collection of all points in the plane that are at a fixed distance from the fixed point in the aircraft is called a circle. A circle is a closed curve, all the points of which are in the same plane and are at the same distance from the center. A fixed point is called the center of a circle, and a fixed distance is called a circle radius. Note : A linear segment, when you join the center and any point of the circle, is also called the radius of the circle. INTERIOR AND EXTERIOR OF A CIRCLE Circle divides the plane on which it lies into three parts. They are (i) inside the circle, which is also called the interior of the circle. (iii) the circle and (iii) outside the circle, which is also called the outer part of the CHORD Chord circle circle is a line that connects the two circle points. The chord passes through the center called diameter. Note : The diameter is the longest chord and all diameters have the same length, which is twice the radius. A piece of the circle between two points is called an arc. In a circle, equal chords have equal arcs. When P and q ends in diameter, both arcs are equal, and each is called a semicircle. The length of the full circle is called its circumference. The area between the chord and any of its arcs is called the circle segment. The area between the arc and the two radii, connecting the center to the end point of the arc, is called a sector, a small arc corresponds to the secondary sector, and the main arc corresponds to the main sector. When the two arcs are equal, i.e. each of them is a semicircle, both segments and both sectors become the same, and each of them is known as a semicircular region. Theorem 1: Equal chords of the circle are divided by equal angles in the center. Theorem 2 : If the angles summed up by the chords of the circle in the center are equal, the chords are equal. PERPENDICULAR FROM CENTRE TO THEOREM ACCORD 3 : Perpendicular from the center of the circle to the chord, corrodes the chord. Theorem 4 : A line stretched through the center of the circle to strike a chord perpendicular to the chord. Theorem 5 : There is one and only one circle going through three data non-collaric points. Note : If the ABC is a triangle, then above this theorem there is a unique circle running through three vertices A, B and C triangle. This circle is called the AABC circle. Its center and radius are called respectively the center of the circle and the circumference of the triangle. EQUAL CHORDS AND THEIR DISTANCES FROM Theorem 6 : Equal chords of a circle (or congruent circles) are equally magnifiing from the center (or centers). Theorem 7 : The chords are uniform from the center of the circle equal in length. ANGLE SUBTENDED BY AN ARC OF A CIRCLE Result : Congruent arcs (or equal arcs) of the circle are divided by equal angles in the center. Theorem 8 : The angle summed up by the arc in the center is twice the angle it summed up at any point on the remaining part of the circle. Note : Theorem gives a link between the angles summed up are in the center and at the point on the circle. ANGLE FORMED IN THE SEGMENT 9: Angles in one segment of the circle are equal. Note : The corner in the semicircle is a right angle. Theorem 10 : If the linear segment, connecting the two points, has equal angles at the other two points lying on the same side of the line containing the linear segment, the four points lie on the circle (i.e. they are cyclical). CYCLIC SQUARE: The quadrilateral ABCD is called cyclical if all four vertices of it lie on a circle. Theorem 11: The sum of any pair of opposite angles of the cyclical quadrilateral is 180 degrees. Theorem 12 : If the sum of a pair of opposite corners of the four-sided is 180, the four-way is cyclical. Class 9 Key points, important questions and practical documents Hope these notes helped you in preparing the exam in schools. Candidates can also check key points, important questions and practical documents on various subjects for Class 9, both In Hindi and English, form a link below. Candidates for the 9th ncERT Solutions class in Class 9 can also check out NCERT's Class 9 solutions here. This will help candidates learn decisions in all subjects covered by the 9th grade. Candidates can click on a theme-wise link to get the same. Class 9 Chapter-wise, detailed solutions to NCERT textbooks are provided to help students compare their responses with sample responses. 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