Mathematics

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(Chapter – 5) (I'm Up and Down, and Round and Round) (Assignment 4)

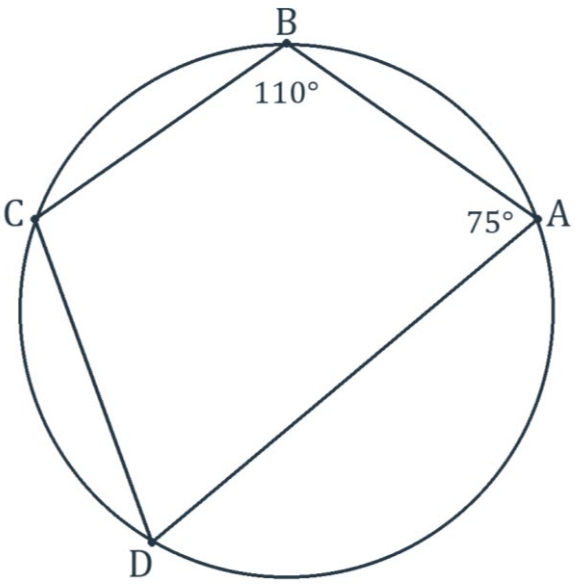
(Class – 9)

Name _____ Date _____

Answer all 15 questions. Choose one option for each MCQ. Show your working and give reasons where required. Figures are schematic unless stated otherwise.

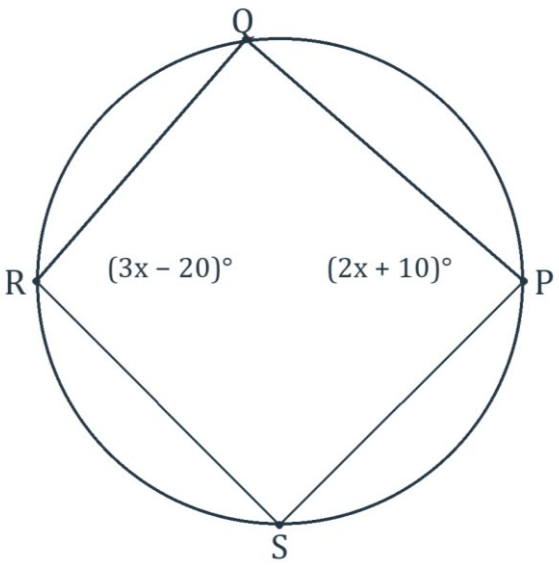
Section A: Multiple Choice Questions

1. ABCD is a cyclic quadrilateral inscribed in a circle. If ∠A measures 75°, what is the measure of ∠C? If ∠B measures 110°, what is the measure of ∠D?



(a) 105°, 70°
(b) 75°, 110°
(c) 105°, 110°
(d) 115°, 70°

2. Quadrilateral PQRS is inscribed in a circle. If ∠P = (2x + 10)° and ∠R = (3x − 20)°, find the value of x and the measures of ∠P and ∠R.



(a) 36; 82°, 88°
(b) 40; 90°, 100°
(c) 38; 86°, 94°
(d) 38; 94°, 86°

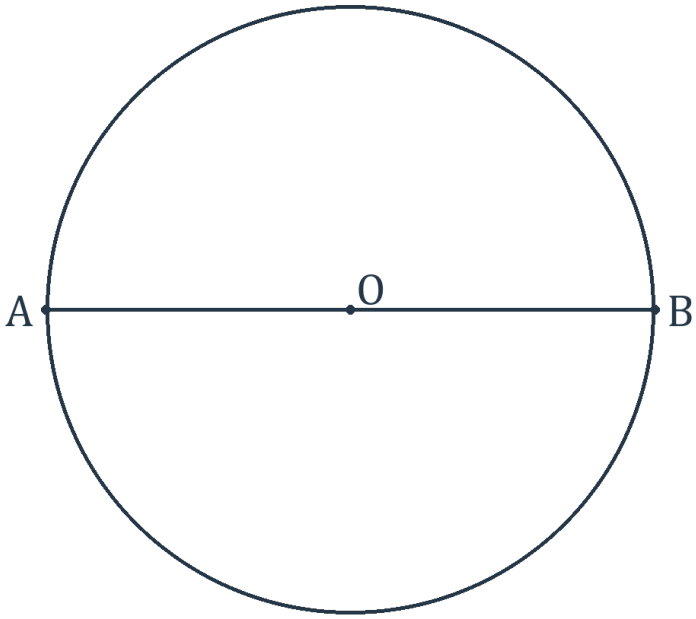
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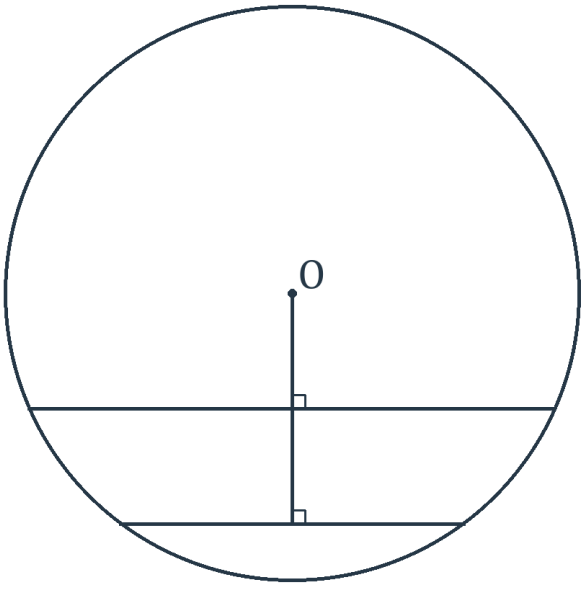
(Class – 9)

3. What is the least possible radius of a circle through two points A and B?



(a) AB
(b) AB/4
(c) 2AB
(d) AB/2

4. You have two chords on a circle. One is longer than the other. Which chord is closer to the centre?



(a) The shorter chord
(b) The longer chord
(c) Both are equally close
(d) It cannot be determined

5. A cyclic quadrilateral is also a rhombus. What must its shape be?

(a) Any rhombus
(b) A trapezium
(c) A square
(d) Any kite

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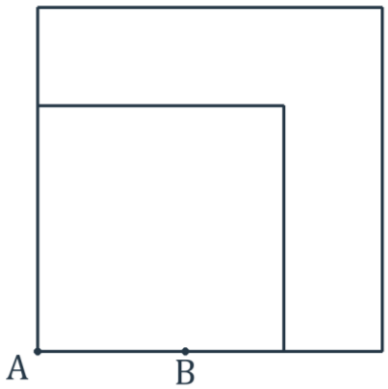
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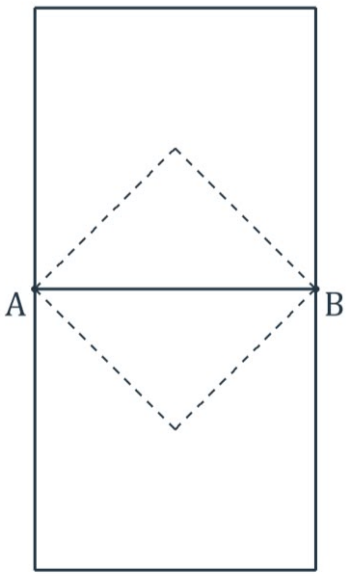
Section B: Very Short Answer Questions

6. You are given two points A and B on a plane. How many squares can you draw on the same plane with A and B on the boundary?



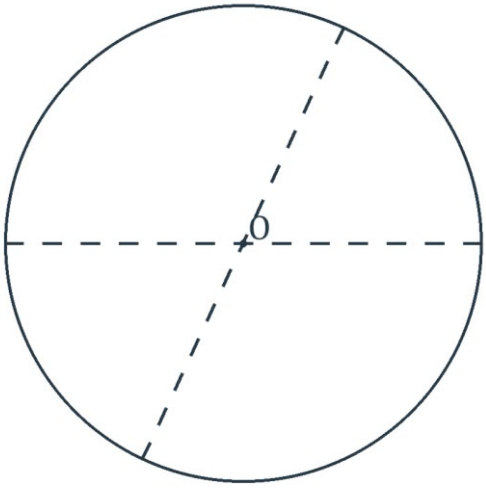
Answer:

7. How many squares can you draw on the plane with A and B as the corners of the square?



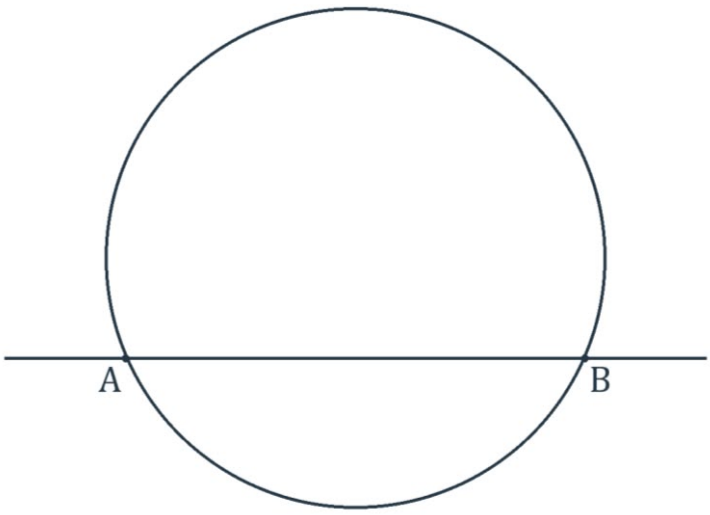
Answer:

8. Draw a circle on the paper and cut along the circle. Fold the circular paper so that the boundaries overlap, then open it. You see a crease; it is a line of reflection symmetry of the circle. Does this line pass through the centre of the circle?



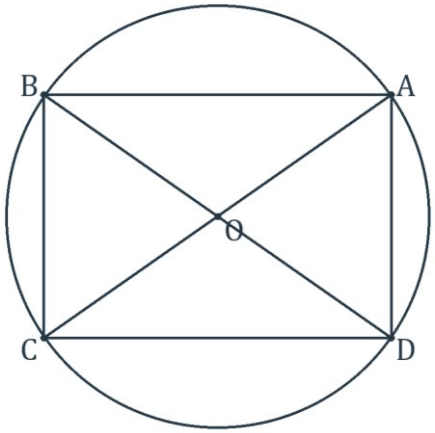
Answer:

9. Can you draw a line that cuts a given circle in three distinct points?



Answer:

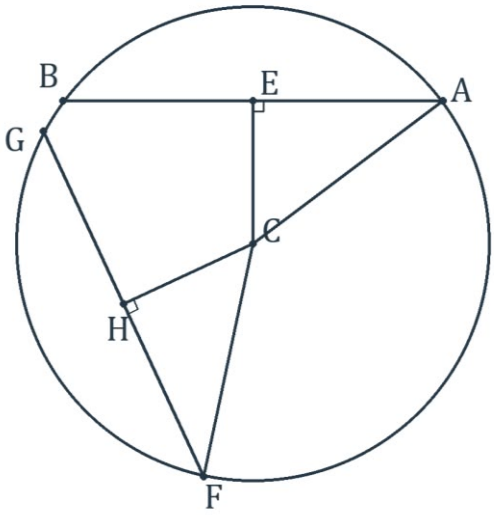
10. Show that if a rectangle is inscribed in a circle, then the point of intersection of its diagonals must lie at the centre of the circle.



Answer:

Section C: Short and Long Answer Questions

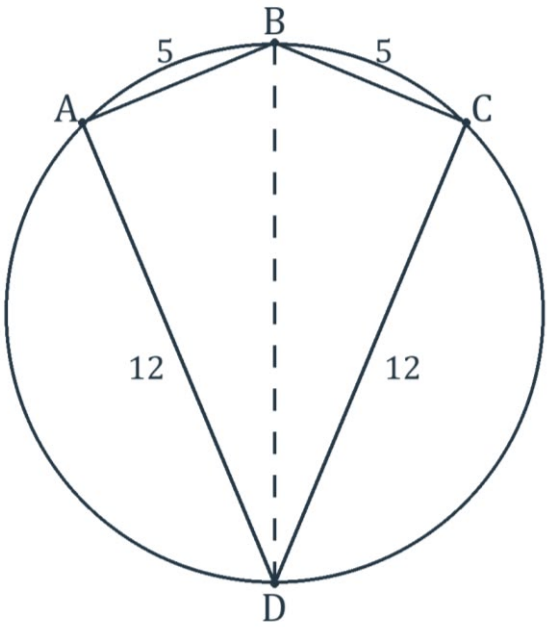
11. Solve the previous question using the Baudhāyana–Pythagoras theorem.



Previous question: Consider figure. If CE is perpendicular to AB, CH is perpendicular to GH, and CE = CH, show that AB = GF.

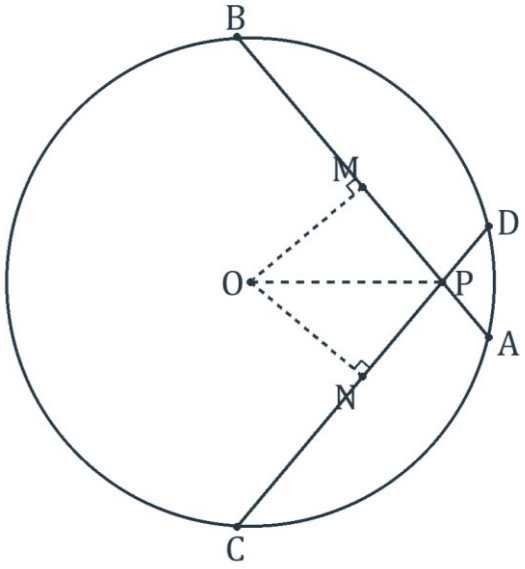
Answer:

12. A cyclic quadrilateral has sides 5, 5, 12, 12 units. Find its area.



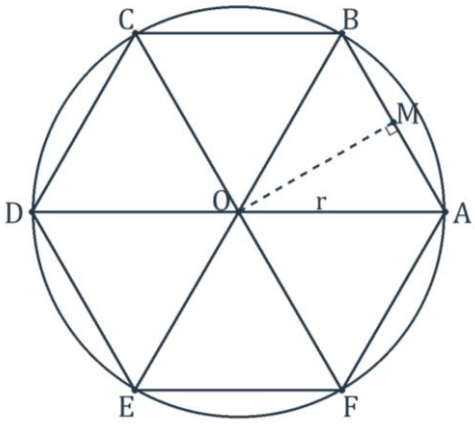
Answer:

13. When two chords intersect, each of them is divided into two line segments. Show that if the intersecting chords are of equal length, then the line segments of one chord are equal to the corresponding line segments of the other chord.



Answer:

14. A regular hexagon is inscribed in a circle of radius r. Find the length of the sides of the hexagon and the distance of each side from the centre of the circle.



Answer:

15. In a circle of radius 10 cm, all chords under consideration have length 12 cm. Describe and draw the locus of their midpoints.

Answer: