Unit 12 · Circle

WORKSHEET

Full marks 26

Name _____ Class _____ Roll no. _____ Date _____ Marks _____ / 26

1 Key words [3]

Match each word in Column A with its meaning in Column B. Write the letter in the box. One meaning in Column B is not needed. Each match carries 0.5 mark.

Column A		Column B
1. central angle	☐	**a.** its vertex is on the circle, its arms are two chords
2. inscribed angle	☐	**b.** a quadrilateral with all four corners on one circle
3. minor arc	☐	**c.** a line that touches the circle at one point only
4. major arc	☐	**d.** the shorter of the two arcs between two points
5. semicircle	☐	**e.** the longer arc, named with a third point on it
6. cyclic quadrilateral	☐	**f.** its vertex is the center, its arms are two radii
		g. the arc cut off by a diameter, 180°

2 Multiple choice [5]

Choose the correct option for each of the following questions.

i. A central angle and an inscribed angle stand on the same arc. The central angle is 140°. What is the inscribed angle? [1]

a. 140° **b.** 280°
c. 70° **d.** 40°

ii. AB is a diameter of a circle and C is any other point on the circle. What is $\angle ACB$? [1]

a. 45° **b.** 60°
c. 90° **d.** 180°

iii. In a cyclic quadrilateral $PQRS$, $\angle P = 75°$. What is $\angle R$? [1]

a. 75° **b.** 105°
c. 15° **d.** 150°

iv. C and D are on the same side of the chord AB, and $\angle ACB = 38°$. What is $\angle ADB$? [1]

a. 38° **b.** 76°
c. 19° **d.** 142°

v. An inscribed angle ACB is 110°. What is the central angle AOB on the same arc? [1]

a. 55° **b.** 110°
c. 140° **d.** reflex 220°

3 Very short answers [2]

Write very short answers to the following questions.

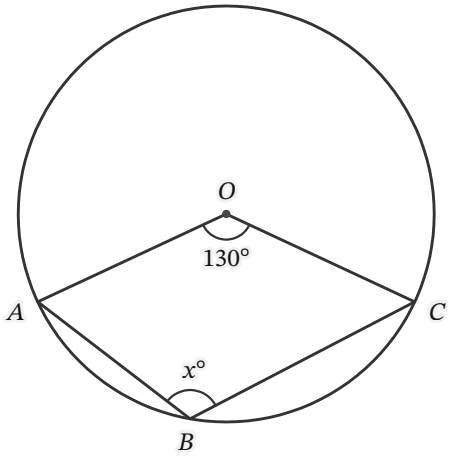
a. Write the relation between the opposite angles of a cyclic quadrilateral. [1]

b. What is the relation between two inscribed angles standing on the same arc? [1]

4 Short answers [6]

Answer the following questions.

a. In the figure, O is the center and $\angle AOC = 130°$. Find $\angle ABC$. [2]



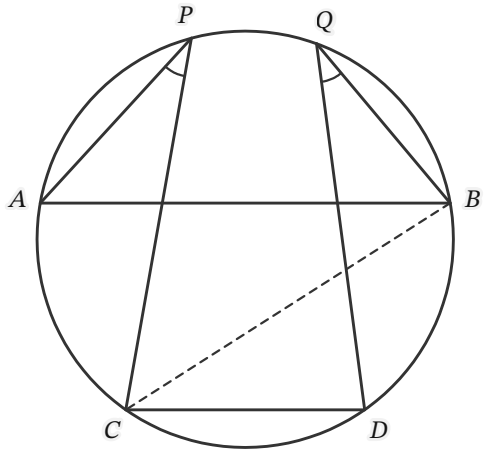
b. A central angle is $(3x + 10)°$ and an inscribed angle on the same arc is $(x + 15)°$. Find x and both angles. [2]

c. Hari writes: "In the cyclic quadrilateral $ABCD$, $\angle A = 70°$, so $\angle B = 110°$." Find his mistake and correct it. [2]

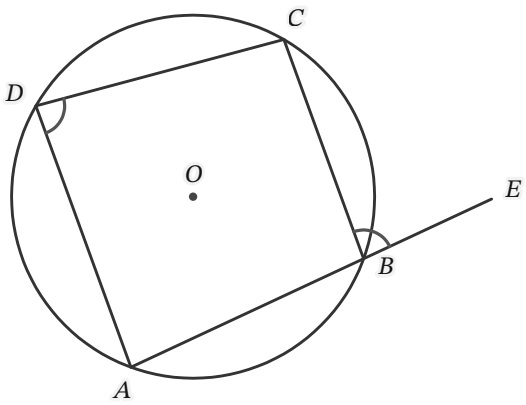
5 Long answers [8]

Prove the following. Write each statement with its reason.

a. In the figure, $\angle APC = \angle BQD$. Prove that $AB \parallel CD$. [4]



b. In the figure, $ABCD$ is a cyclic quadrilateral and AB is produced to E. Prove that $\angle ADC = \angle CBE$. [4]



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6 Think [2]

Think, then answer.

Can a parallelogram that is not a rectangle be a cyclic quadrilateral? Give a reason.

7 Activity: Verify it (not marked)

Draw two circles, of radii 3 cm and 4 cm. In each, draw a chord AB and two inscribed angles ACB and ADB on the same arc. Measure the angles with a protractor and fill in the table.

Circle	$\angle ACB$	$\angle ADB$	**Result**
radius 3 cm			
radius 4 cm			

Conclusion: