

## EXERCISE 10.2

Write True or False and justify your answer in each of the following:

1. Two chords AB and CD of a circle are each at distances 4 cm from the centre. Then  $AB = CD$ .

**Solution:**

True

Justification:

Given that AB and AC are chords that are at a distance of 4 cm from center of a circle.  
Since, chords that are equidistant from the center of a circle are equal in length,  
We have,  $AB = CD$ .

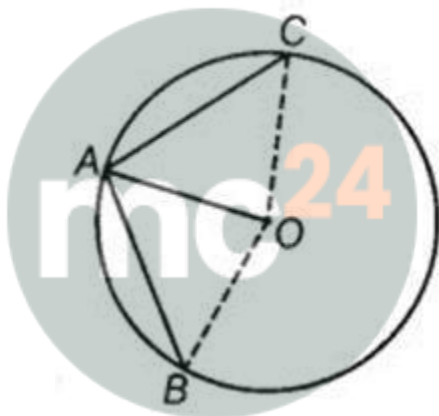
2. Two chords AB and AC of a circle with centre O are on the opposite sides of OA. Then  $\angle OAB = \angle OAC$ .

**Solution:**

False

Justification:

Let AB and AC be the chord of the circle with center O on the opposite side of OA.



Consider the triangles AOC and AOB:

$AO = AO$  (Common side in both triangles)

$OB = OC$  (Both OB and OC are radius of circle)

But we can't show that either the third side of both triangles are equal or any angle is equal.

Therefore  $\triangle AOB$  is not congruent to  $\triangle AOC$ .

$\therefore \angle OAB \neq \angle OAC$ .

3. Two congruent circles with centres O and O' intersect at two points A and B. Then  $\angle AOB = \angle AO'B$ .

**Solution:**

True

Justification:

Equal chords of congruent circles subtend equal angles at the respective centre.

Hence, the given statement is true.

4. Through three collinear points a circle can be drawn.

**Solution:**

False

Justification:

A circle through two points cannot pass through a point which is collinear to these two points. Hence, the given statement is false.

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

**Solution:**

True

Justification:

According to the question,

Radius of circle = 3 cm

Diameter of circle =  $2 \times r$

$$= 2 \times 3 \text{ cm}$$

$$= 6 \text{ cm}$$

Now,

From the question we have,

$AB = 6$  cm

So, the given statement is true because AB will be the diameter



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