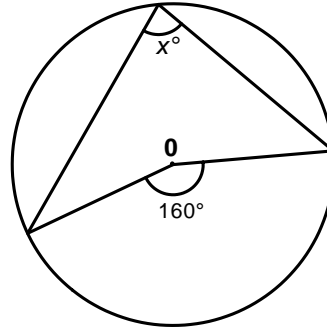


Section A: Multiple Choice. Circle the letter of the correct response. (12 points)

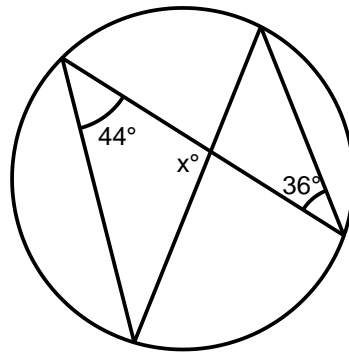
1. In the circle with Centre O shown, what is the value of x ?

- (A) 80°
- (B) 160°
- (C) 200°
- (D) 320°



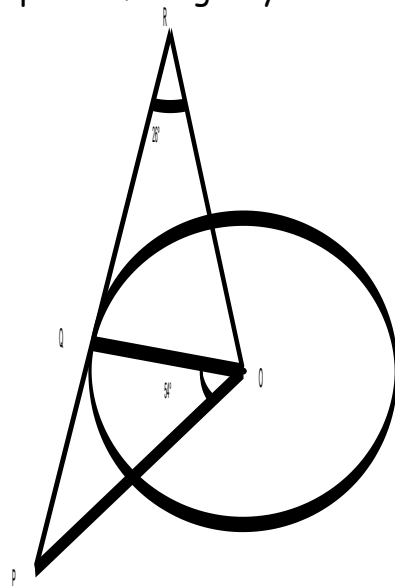
2. What is the value of x ?

- (A) 80°
- (B) 92°
- (C) 100°
- (D) 108°



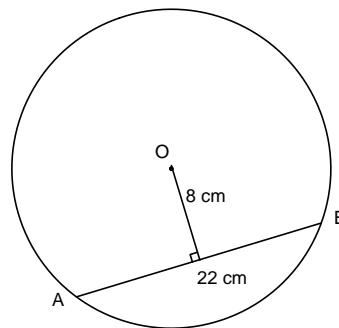
3. In the circle with Centre O shown, point Q is a point of tangency. What is the measure of $\angle POR$?

- (A) 90°
- (B) 64°
- (C) 108°
- (D) 118°



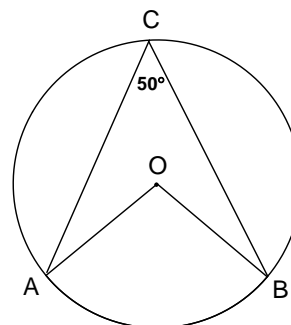
4. In the circle with centre O shown, chord \overline{AB} is 22 cm long and is 8 cm from the centre. What is the length, in cm, of OA ?

- (A) 13.6
- (B) 15.0
- (C) 20.5
- (D) 27.2



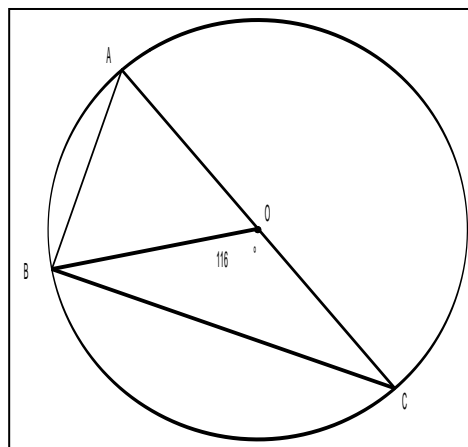
5. In the circle with centre O shown, $\angle ACB = 50^\circ$. What is the measure, in degrees, of $\angle AOB$?

- (A) 25
- (B) 50
- (C) 100
- (D) 90



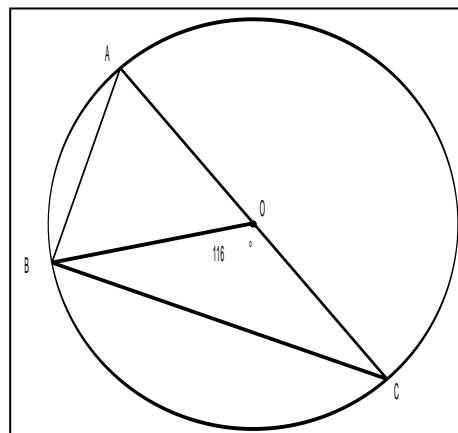
6. In the circle with centre O shown, $\angle BOC = 116^\circ$. What is the measure, in degrees, of $\angle OBC$?

- (A) 32
- (B) 64
- (C) 90
- (D) 116



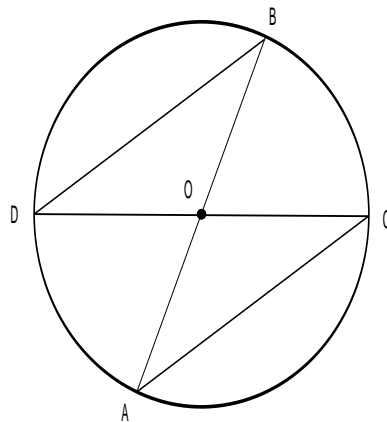
7. In the circle with centre O shown, $\angle BOC = 116^\circ$. What is the measure, in degrees, of $\angle BAC$?

- (A) 232
- (B) 52
- (C) 58
- (D) 64



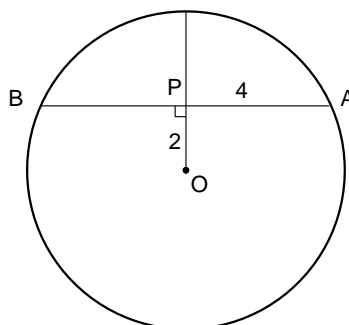
8. In the circle with centre O shown, the measure of $\angle BOC$ is 68° . What is the measure, in degrees, of $\angle BDC$?

- (A) 34
 (B) 68
 (C) 136
 (D) 146



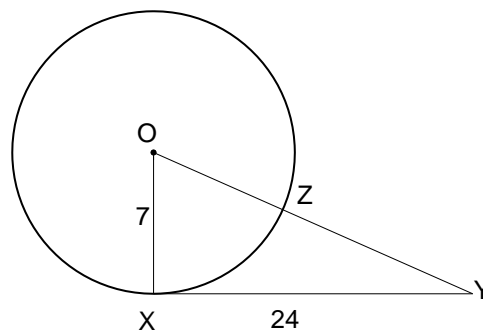
9. In the circle with centre O shown, $\overline{PA} = 4$ and $\overline{PO} = 2$. What is the length of \overline{BP} ?

- (A) 2
 (B) 4
 (C) 8
 (D) 4.5



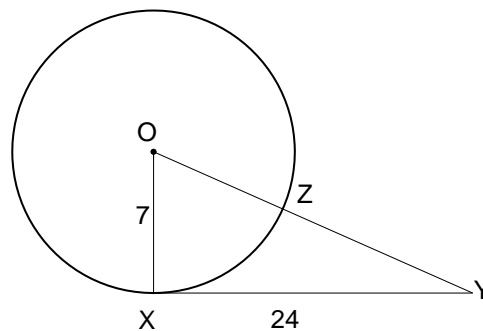
10. In the circle with centre O shown, what is the length of \overline{YO} if \overline{YX} is tangent to the circle at X ?

- (A) 16
 (B) 18
 (C) 23
 (D) 25



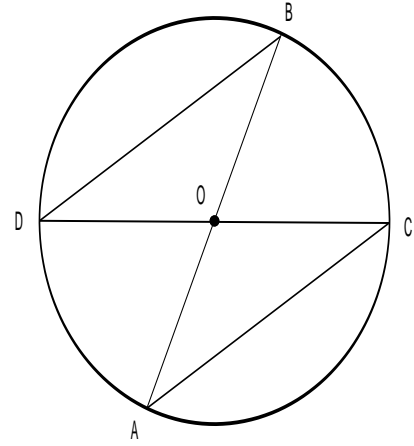
11. In the circle with centre O shown, what is the measure, in degrees, of $\angle OXY$ if \overline{YX} is tangent to the circle at X ?

- (A) 25
 (B) 45
 (C) 90
 (D) 100



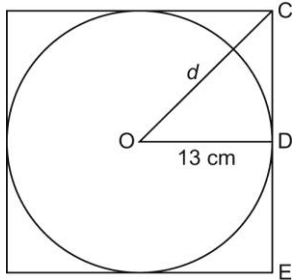
12. In the circle with centre O shown, the measure of $\angle BDC$ is 41° . What is the measure, in degrees, of $\angle BAC$?

- (A) 82
(B) 41
(C) 20.5
(D) 90



SECTION B: Answer all questions in the space provided. Workings are required. (13points)

13. A circular plate has radius 13 cm. It is packed in a square cardboard frame whose 4 edges just touch the plate. What is the distance, d , from the centre of the plate to a corner of the frame? Show all workings. (Give the answer to the nearest tenth of a centimetre.) *Value 4*



14. A circle has diameter 70 cm. A chord in the circle is 50 cm long. How far is the chord from the centre of the circle? Give the answer to the nearest tenth of a centimetre. Sketch a diagram and show workings. *Value 5*

15. Point O is the centre of the circle. Point P is a point of tangency. Determine the value of x to the nearest tenth. Show workings. *Value 4*

