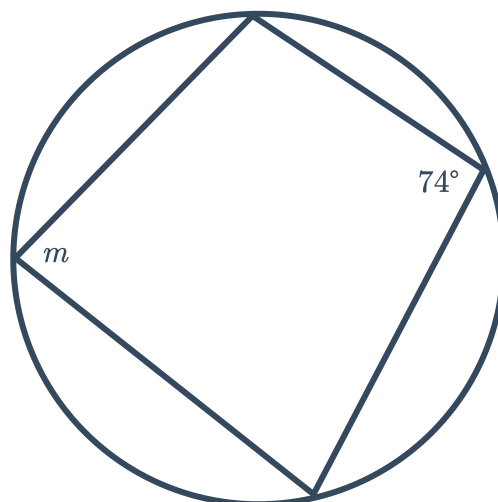


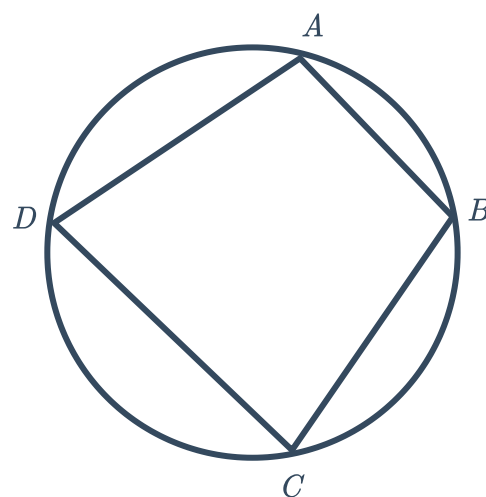
Cyclic quadrilaterals

- 1 The diagram shows a cyclic quadrilateral. Solve for m .

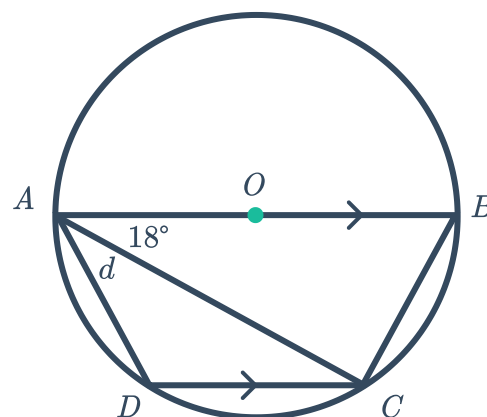


- 2 In the following figure, $ABCD$ is inscribed inside a circle:

- a What is the sum of any two opposite angles in the quadrilateral $ABCD$?
- b Can a parallelogram be inscribed inside a circle? Explain your answer.
- c Can a rectangle be inscribed inside a circle? Explain your answer.

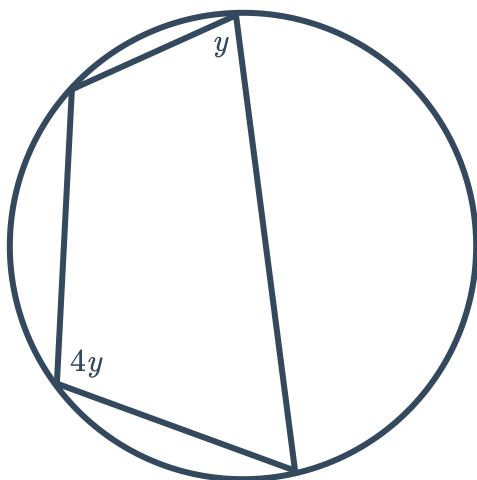


- 3 Consider the following figure: Determine the value of d .

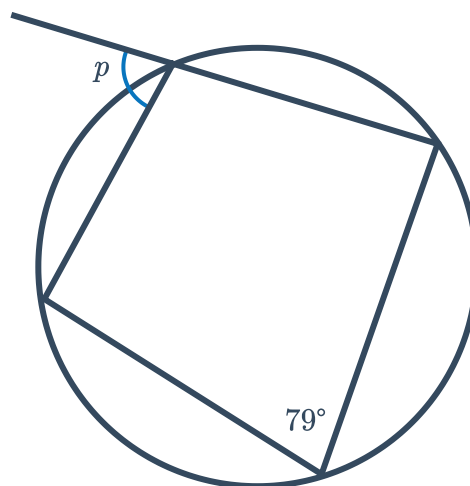


4 Find the value of the pronumerals in the following diagrams. Give reasons for your answer.

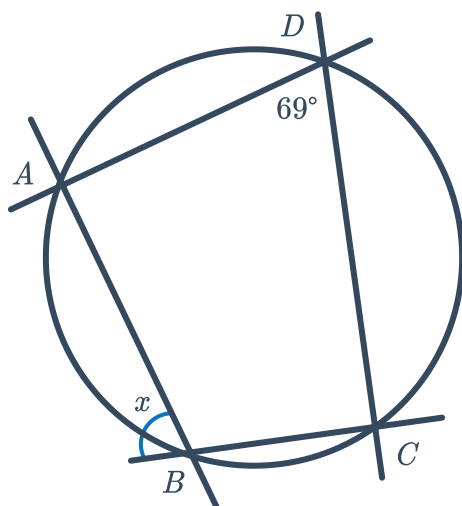
a



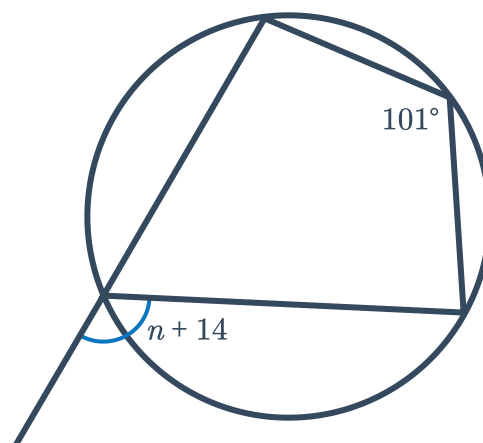
b



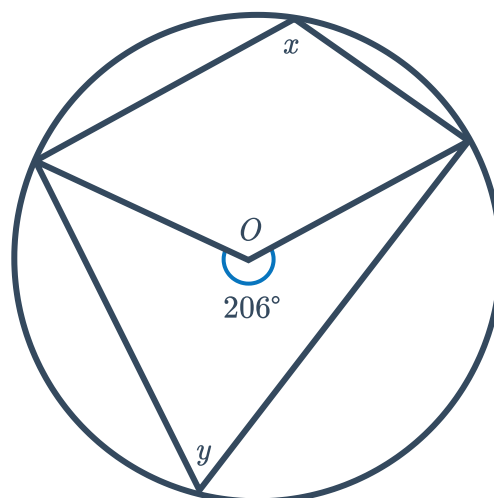
c



d

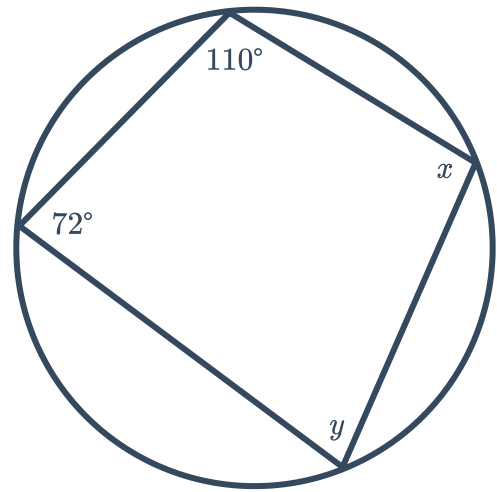


5 Find the value of y in the following diagram:



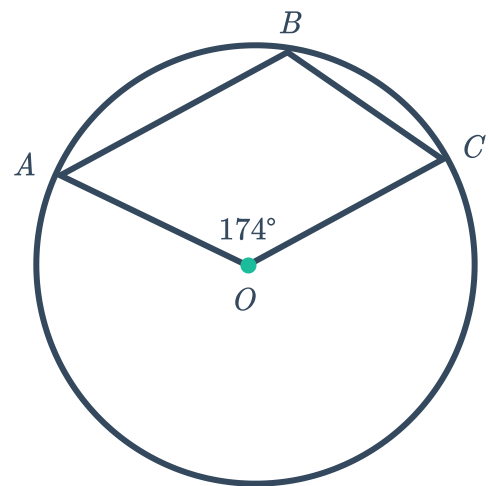
6 Consider the following figure:

- a Find the value of x .
- b Find the value of y .



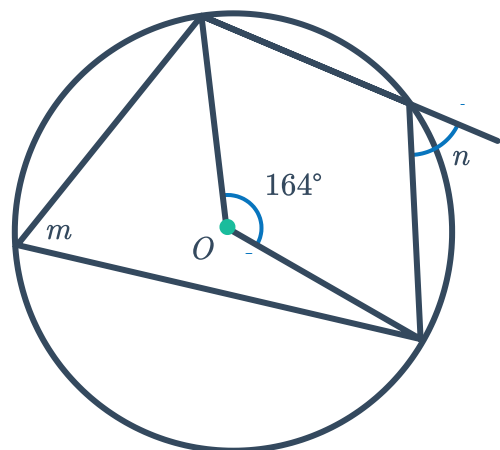
7 In the diagram, $\angle AOC = 174^\circ$, where O is the centre of the circle:

- a Determine the size of reflex $\angle AOC$.
- b Determine the size of $\angle ABC$.
- c Can a circle be drawn through the vertices of quadrilateral $OABC$? Explain your answer.



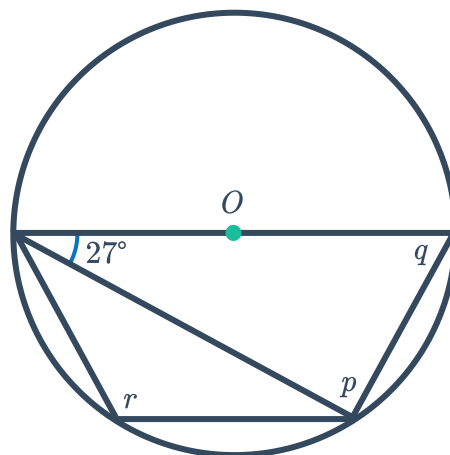
8 In the diagram, O is the centre of the circle:

- a Solve for the value of m , giving reasons for your answer.
- b Solve for the value of n , giving reasons for your answer.



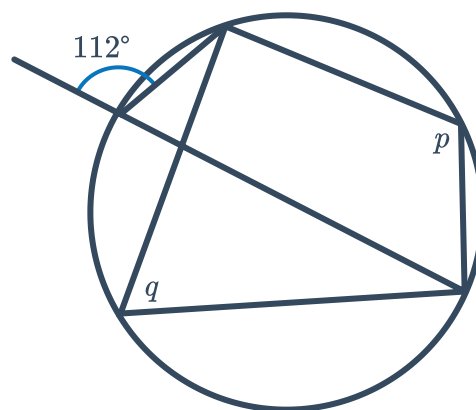
9 In the diagram, O is the centre of the circle.

- a Solve for p , giving reasons for your answer.
- b Solve for q , giving reasons for your answer.
- c Solve for r , giving reasons for your answer.

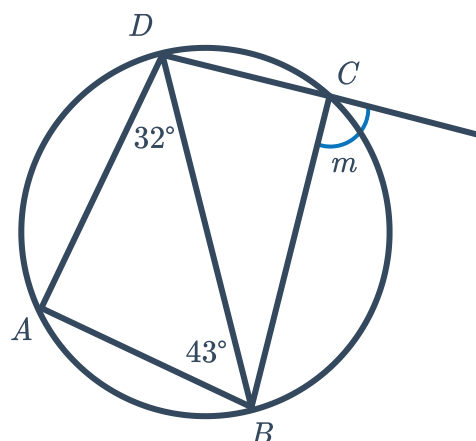


10 Consider the given diagram:

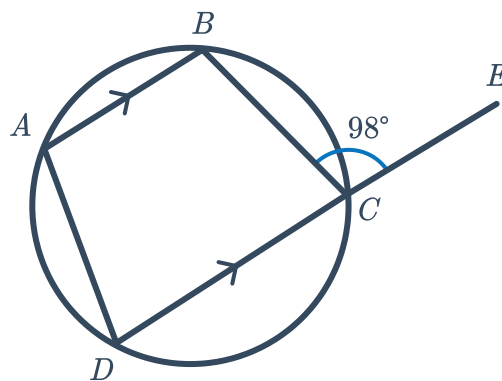
- a Find the value of p , giving reasons for your answer.
- b Find the value of q , giving reasons for your answer.



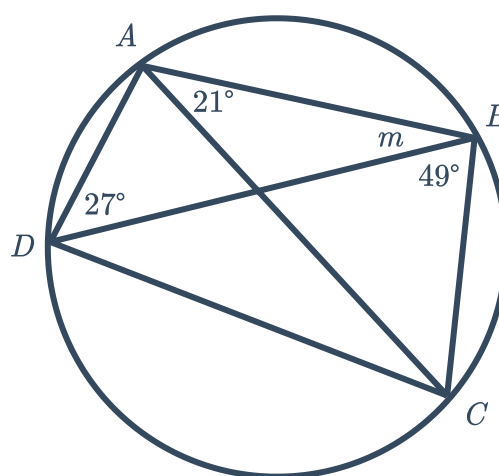
11 In the diagram, $\angle ADB = 32^\circ$ and $\angle DBA = 43^\circ$. Find the size of the angle marked m , giving reasons for your answer.



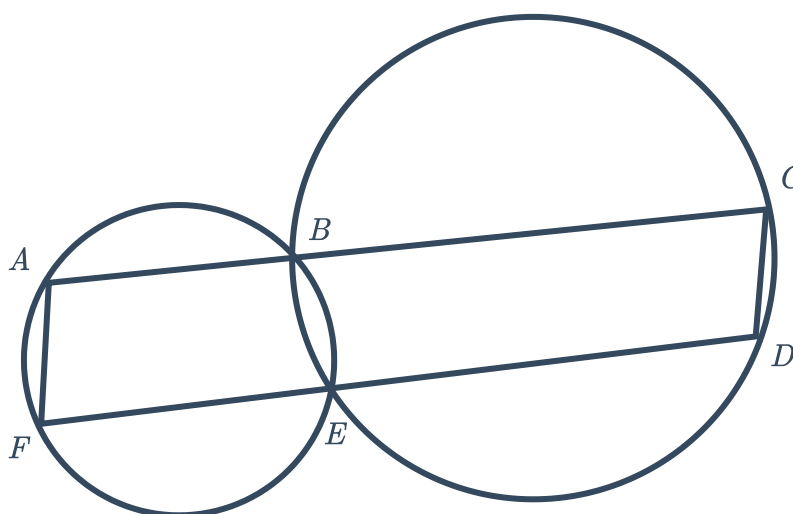
- 12 In the diagram, $AB \parallel DC$ and $\angle BCE = 98^\circ$. DC is produced to point E . Find the size of $\angle BAD$.



- 13 In the diagram, $\angle DBA = 27^\circ$, $\angle CAB = 49^\circ$, $\angle CBD = 21^\circ$ and $\angle ABD = m$. Solve for m , giving reasons.

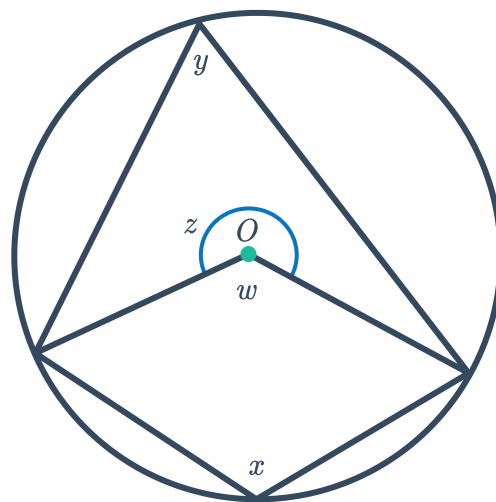


- 14 In the following figure, consider the two circles intersect at points B and E . If $\angle BCD = 94^\circ$. Find $\angle BAF$.

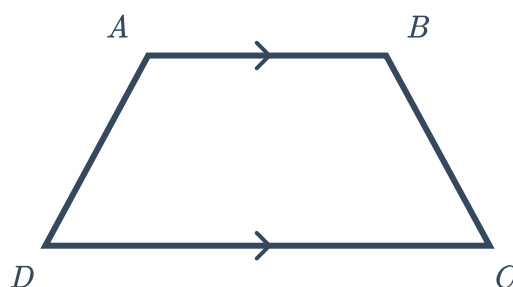


Proofs

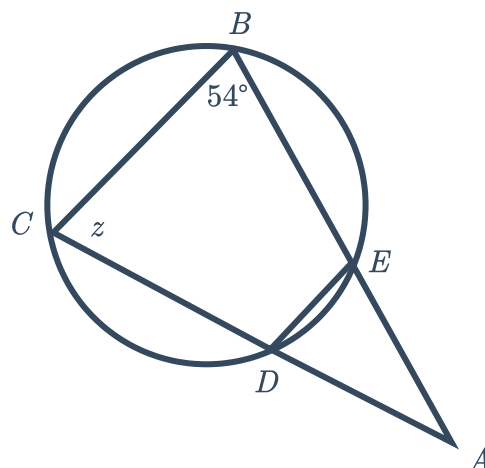
- 15 In the diagram, O is the centre of the circle. Show that x and y are supplementary angles.



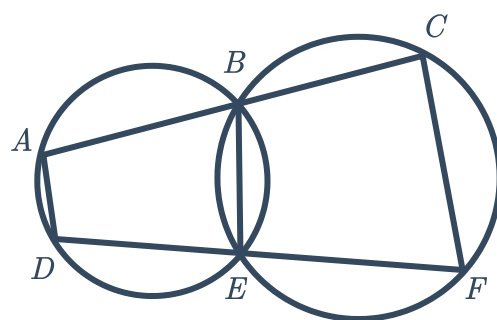
- 16 In the diagram, $ABCD$ is an isosceles trapezium, so $AD = BC$. Prove that the points A , B , C and D are concyclic.



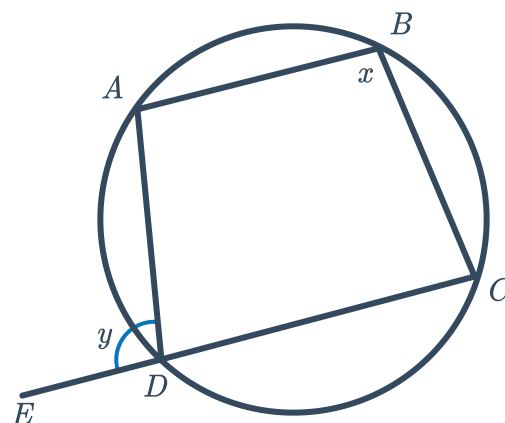
- 17 Consider the following diagram: Prove that $\angle BAC = 126 - z$.



- 18 Consider the following diagram:
Prove $AD \parallel CF$.



- 19 Consider the following diagram:
Prove that $x = y$.



- 20 Consider the figure:

- Prove that $\angle ABC = \angle CDE$.
- By proving two similar triangles, Prove that $\angle BAD$ and $\angle DCE$ are equal.
- Hence prove that $EB \times EC = ED \times EA$.

