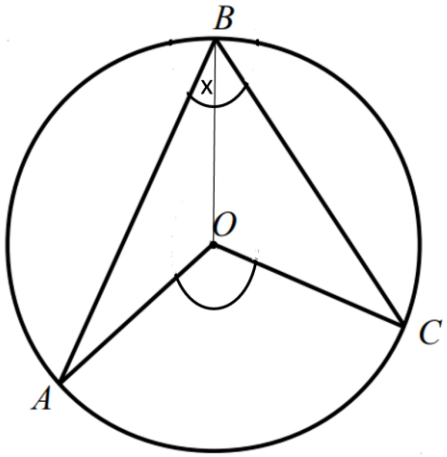
# Proving Circle Theorems Exam Practice

Q1. A, B and C are points on the circumference of a circle, centre O.
Let $x$ be angle ABO.



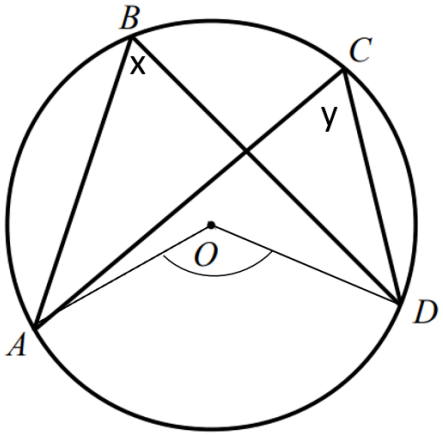

(a) Find an expression for AOB in terms of $x$.

(2 marks)

(b) Hence, prove that the angle AOC shown above is twice the size of angle ABC.

(2 marks)

Q2. A, B, C and D are points on the circumference of a circle, centre O.



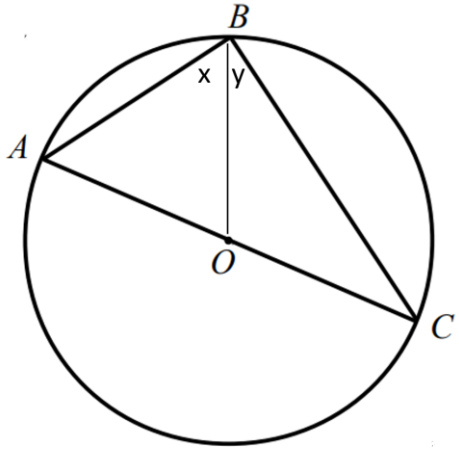

a) State the size of AOD in terms of $x$, justifying your reasoning.

(2 marks)

b) Hence prove that angle ABD and angle ACD are equal.

(2 marks)

Q3. A, B and C are points on the circumference of a circle, centre O.
AOC is a diameter of the circle. Let $x$ be angle ABO and $y$ be angle CBO.



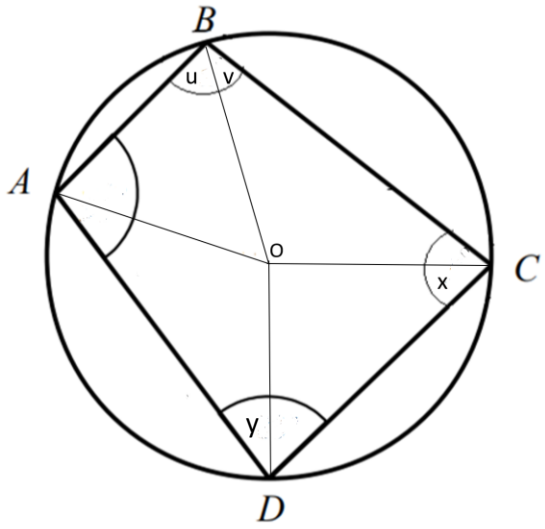

a) Show that $2x + 2y = 180$, fully showing your reasoning.

(2 marks)

b) Hence prove that angle ABC is 90°

(2 marks)

Q4. A, B, C and D are points on the circumference of a circle, centre O.



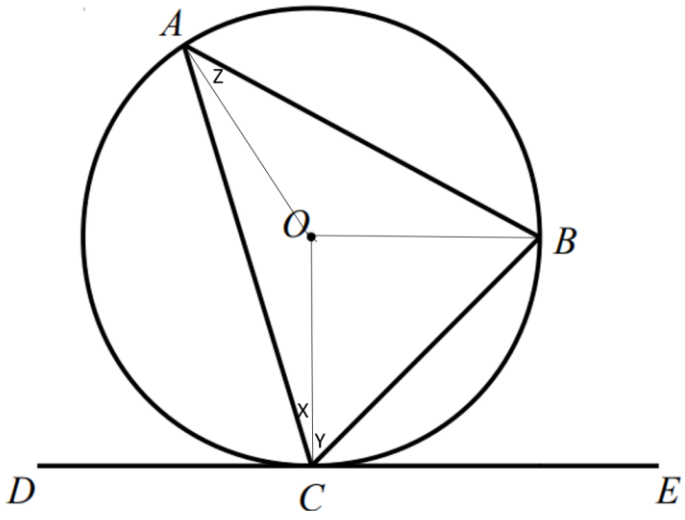

a) Show that $x + y + u + v = 180$, fully showing your reasoning.

(2 marks)

b) Hence prove that angle ABC and angle ADC add to 180°

(2 marks)

Q5. A, B and C are points on the circumference of a circle, centre O.
DCE is a tangent to the circle.




a) Show that $x + y + z = 90$, fully showing your reasoning.

(2 marks)

b) State the value of angle BCE in terms of $y$, justifying your answer.

(2 marks)

c) Hence prove that angle BCE and angle BAC are equal.

(2 marks)