Circle Theorems Exam Questions

In the diagram below points Q and S lie on a circle centre O. SR is a tangent to the circle at S. Angle QRS = 40° and angle SOQ = 80°. Prove that triangle QSR is isosceles. (3 marks)

A, B and C are points on the circumference of a circle with centre O. BD and CD are tangents. Angle BDC = 40°

(i) Work out the value of p. (2 marks)
(ii) Hence write down the value of q. (1 mark)

The tangent DB is extended to T. The line AO is added to the diagram. Angle TBA = 62°

(i) Work out the value of x. (2 marks)
(ii) Work out the value of y. (2 marks)
A, B, C and D are points on the circumference of a circle. AC is a diameter of the circle. Angle BAC = 65°.

(a) Write down the value of x. (1 mark)
(b) Calculate the value of y. (1 mark)

Points P, Q, R and S lie on a circle. PQ = QR Angle PQR = 116°.

Explain why angle QSR = 32°. (2 marks)

The diagram shows a circle, centre O. TA is a tangent to the circle at A. Angle BAC = 58° and angle BAT = 74°.

(i) Calculate angle BOC. (1 mark)
(ii) Calculate angle OCA. (3 marks)

The diagram shows a circle with centre O. Work out the size of the angle marked x. (1 mark)
The diagram shows a different circle with centre $O$. Work out the size of the angle marked $y$. (1 mark)

The diagram shows a cyclic quadrilateral $ABCD$. The straight lines $BA$ and $CD$ are extended and meet at $E$. $EA = AC$ Angle $ABC = 3x^\circ$ Angle $ADC = 9x^\circ$ Angle $DAC = 2x^\circ$

(i) Show that $x = 15$ (2 marks)
(ii) Calculate the size of angle $EAD$. (4 marks)

(i) Write down the value of $x$. (1 mark)
(ii) Calculate the value of $y$. (1 mark)
A and C are points on the circumference of a circle centre B. AD and CD are tangents. Angle $ADB = 40^\circ$.

Explain why angle $ABC$ is $100^\circ$.  

$ABCD$ is a cyclic quadrilateral. PAQ is a tangent to the circle at A. $BC = CD$. AD is parallel to BC. Angle $BAQ = 32^\circ$.

Find the size of angle $BAD$. You **must** show all your working.