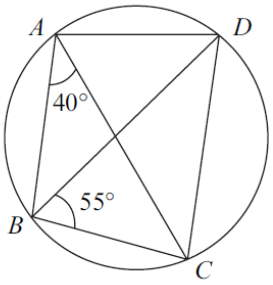
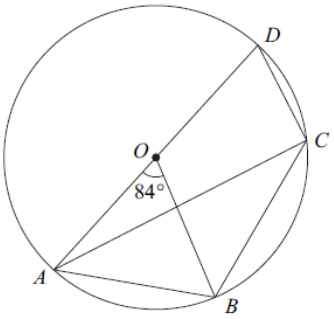
Circle Theorems



1a) Find $D\hat{A}C$, give a reason for your answer

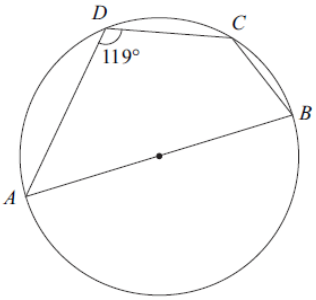
b) Find $D\hat{C}B$, give a reason for your answer

c) Is BD a diameter? Give a reason.



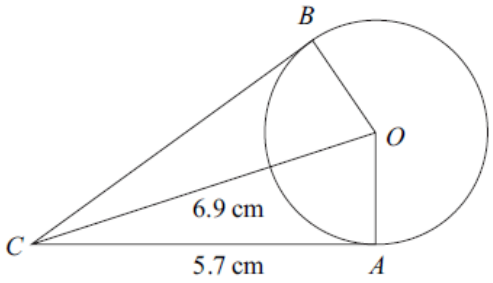
2a) Find $A\hat{C}B$, give a reason for your answer

b) Find $D\hat{C}B$, show all steps in your working



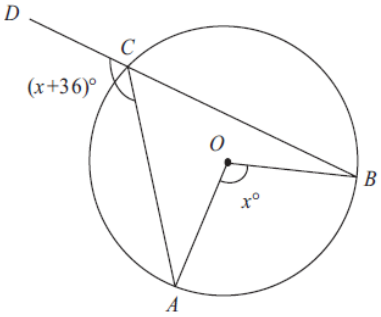
3a) Find $A\hat{B}C$, give a reason for your answer

b) Find $B\hat{A}C$, show all steps in your working

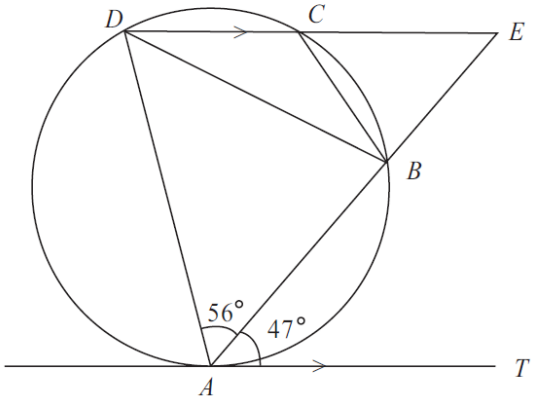


4a) Give a reason why $C\hat{A}O = 90°$

b) Find the perimeter of the kite CBOA to 3sf



5) Find x



6) Find $C\hat{B}D$, give reasons for every stage of your working

Answers

1a) 55 same segment b) 85 opposite angles in a cyclic quadrilateral add to 180 c) no, if it was $B\hat{A}D$ would be 90

2a) 42 angle at centre is twice circumference

b) angle OAB = 48 (isosceles), angle DCB = 132 (opposite angles in a cyclic quad add to 180)

3a) 61 opposite angles in a cyclic quad add to 180

b) angle ACB = 90 (diameter subtends 90), angle BAC = 19 (angles in a triangle add to 180)

4a) radius and tangent meet at 90 b) 19.2

5) 96

6) angle ADB = 47 (alternate segment theorem)

angle BCD = 124 (opposite angles in a cyclic quad add to 180)

angle BCE = 56 (angles on a straight line add to 180)

angle BEC = 47 (alternate)

angle CBE = 73 (angles in a triangle add to 180)

angle ABD = 73 (angles in a triangle add to 180)

angle CBD = 34 (angles on a straight line add to 180)