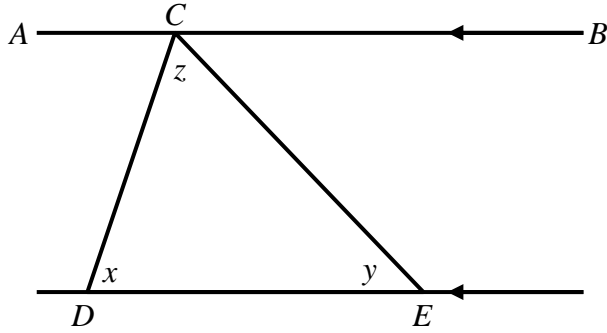


Deductive Geometry

Level 1 – 2

1. Answer the following questions to show that the internal angles of a triangle add up to 180° .



a) Write down an expression for the size of angle $\angle ACD$

.....

b) Write down an expression for the size of angle $\angle BCE$

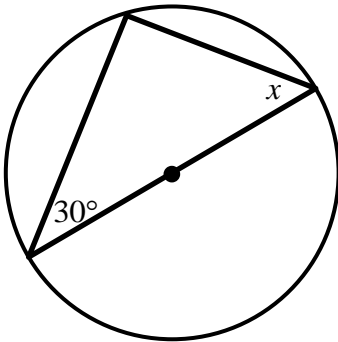
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c) Hence explain why $x + y + z = 180^\circ$.

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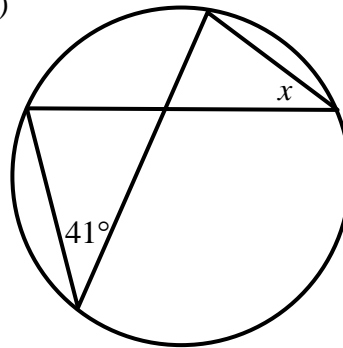
2. Determine the value of x in the following diagrams.

a)

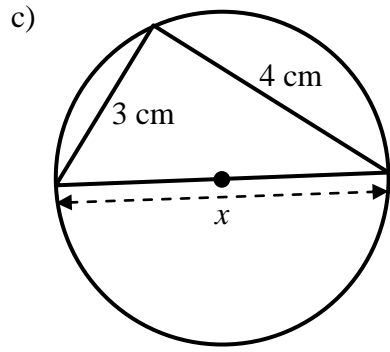


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b)



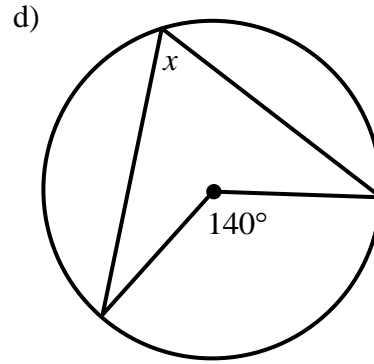
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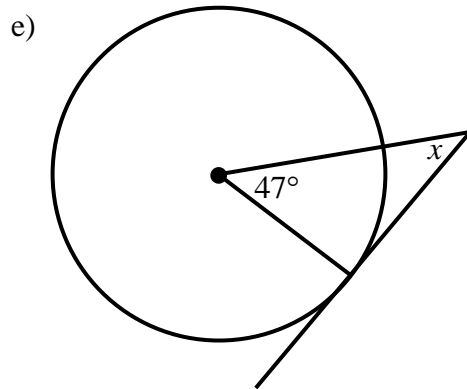
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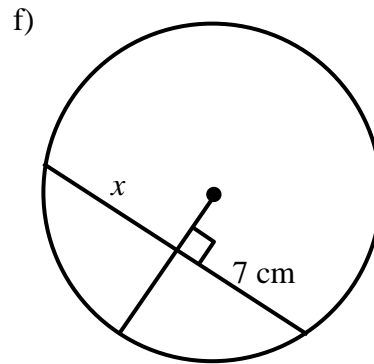
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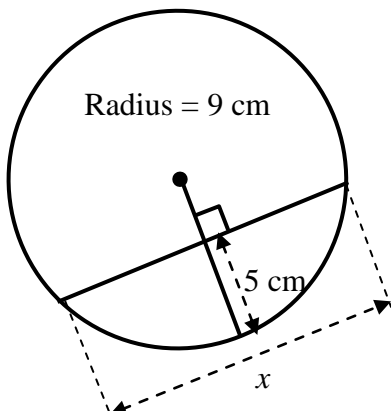
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Level 3 – 4

3. Calculate the value of x to 2 decimal places.



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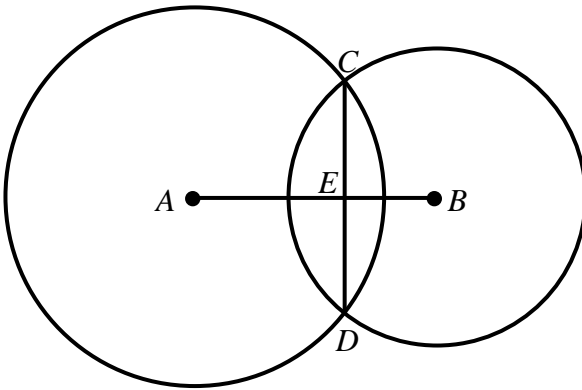
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4. The following diagram contains two overlapping circles of radius 10 cm and 7 cm with centres A and B . The length of CD is 5 cm.



a) Write down the length of BC .

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b) Write down the length of EC .

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b) Hence calculate length EB .

.....

c) Use a similar method to calculate length AE .

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d) Hence calculate length AB .

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5. By drawing a suitable diagram show the following

a) The sum of the internal angles of a quadrilateral is equal to 360°

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b) The sum of the internal angles of a hexagon is equal to 720°

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c) The sum of the internal angles of an n -gon is 1620° . Construct an equation and solve it to determine the value of n .

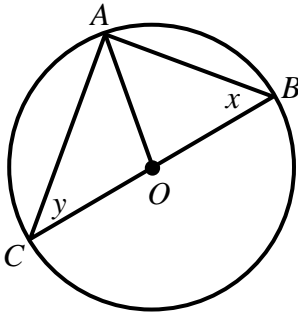
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Level 5 – 6

6. In this question you will prove $\angle BAC = 90^\circ$.



a) Write down an expression for angle $\angle OAB$.

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b) Write down an expression for angle $\angle OAC$.

.....

c) Write down an expression for angle $\angle BAC$.

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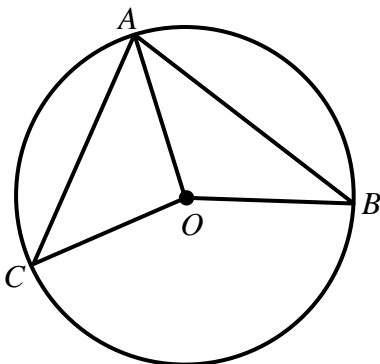
d) Hence, show that angle $\angle BAC = 90^\circ$.

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7. Use a similar method to show that $\angle BOC = 2 \times \angle BAC$.



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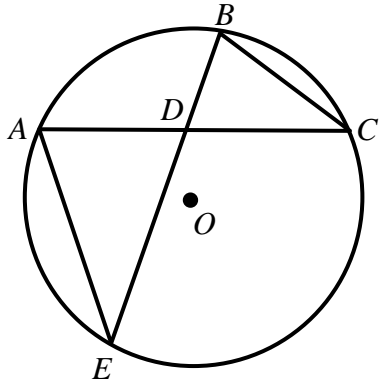
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10. Show that $\angle EAD = \angle CBD$. *Hint: you will need to use the centre of the circle, O .*



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