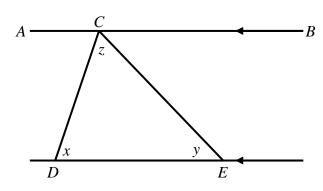
Deductive Geometry

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 ∠ACD

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b) Write down an expression for the size of angle ∠*BCE*

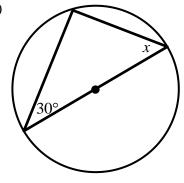
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c) Hence explain why $x + y + z = 180^{\circ}$.

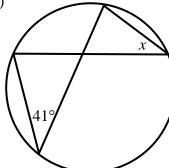
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2. Determine the value of x in the following diagrams.

a)



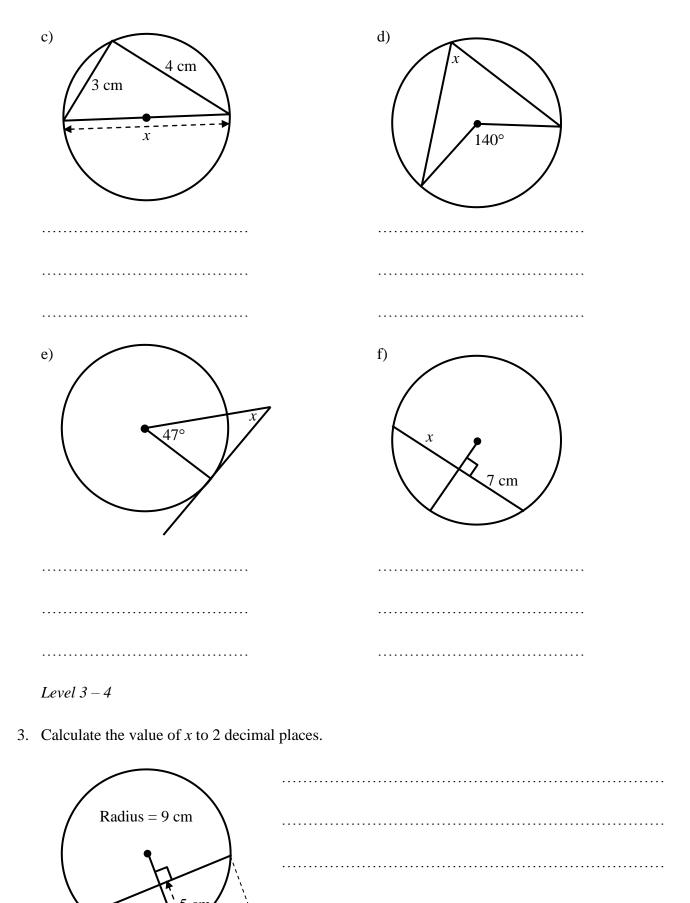
b)



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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.			
	$A \bullet \bigcirc E$ D	a) Write down the length of <i>BC</i> .		
		b) Write down the length of <i>EC</i> .		
		b) Hence calculate length EB.		
	c) Use a similar method to calculate l	length AE.		
	d) Hence calculate length <i>AB</i> .			
5.	By drawing a suitable diagram show the following			
	a) The sum of the internal angles of a	a quadrilateral is equal to 360°		
	b) The sum of the internal angles of a	a hexagon is equal to 720°		

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 .		
Level 5 – 66. In this question you will prove ∠	$VRAC - 90^{\circ}$	
A A	a) Write down an expression for angle $\angle OAB$.	
C	b) Write down an expression for angle $\angle OAC$.	
c) Write down an expression for	angle ∠BAC .	
d) Hence, show that angle ∠BAC		
7. Use a similar method to show th	at $\angle BOC = 2 \times \angle BAC$.	
A		
O		

8.	Calculate the radius of the largest circ 13 cm. Explain your method clearly a	cle which fits inside a triangle with sides of length 5 cm, 12 cm and and show full working out.
9.	. The following diagram shows part of a convex n -gon (convex means all of the internal angles are less than 180°). Show that the sum of the external angles $b_1 + b_2 + b_3 + \cdots + b_n$ is equal to 360°.	
	a_1	a_2 a_3 b_3 a_4 b_4

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

$\frac{B}{A}$	
$A \longrightarrow C$	
$\left(\left\backslash \right\rangle _{o}^{\bullet}\right)$	
E	