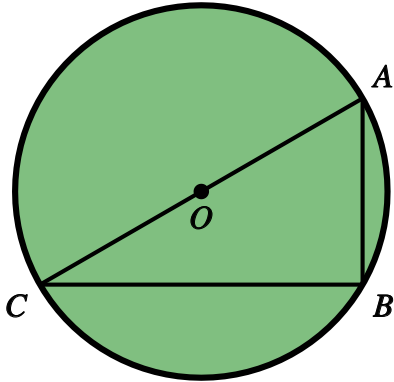


# Circle Theorems

Name:	Class:	Date:
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Mark	/ 10	%
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1) In the diagram below, angle  $BAC = 60^\circ$ .



Find the following angles, giving reasons for your answers:

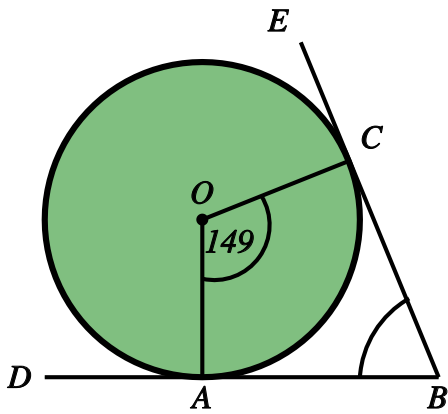
a) angle ABC

b) angle ACB

[1]

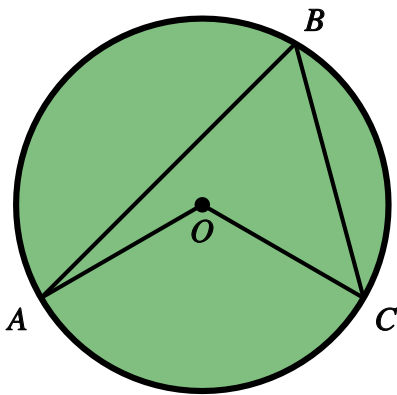
2) Find angle ABC in the following diagram, giving reasons for your answer.

[1]



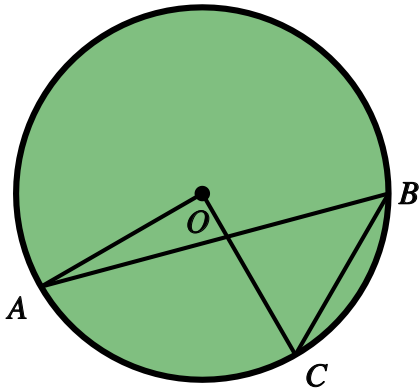
3) In the diagram below, angle AOC =  $135^\circ$ .  
Find angle ABC, giving a reason for your answer.

[1]

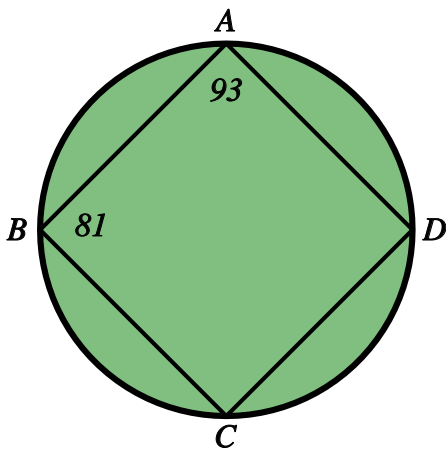


4) In the diagram below, angle  $AOC = 131^\circ$ .  
Find angle  $ABC$ , giving a reason for your answer.

[1]



5) In the diagram below, angle  $DAB = 93^\circ$  and angle  $ABC = 81^\circ$ .



Find the following angles, giving reasons for your answers:

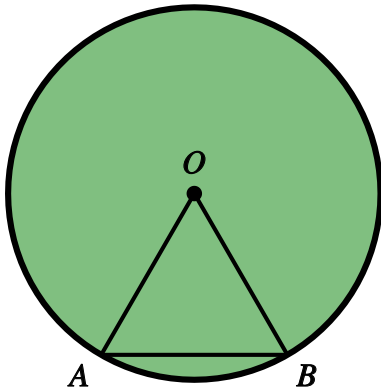
a) angle  $BCD$

b) angle  $CDA$

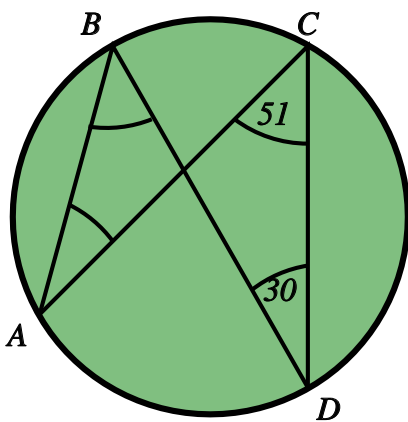
[1]

6) In the diagram below, angle  $AOB = 99^\circ$ .  
Find angle  $OAB$ , giving reasons for your answer.

[1]



7) The diagram below shows a circle with points  $A$ ,  $B$ ,  $C$  and  $D$  on the circumference.



Find the following angles, giving reasons for your answers:

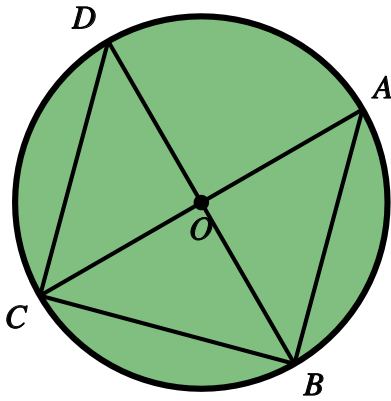
a) angle  $ABD$

b) angle  $BAC$

[1]

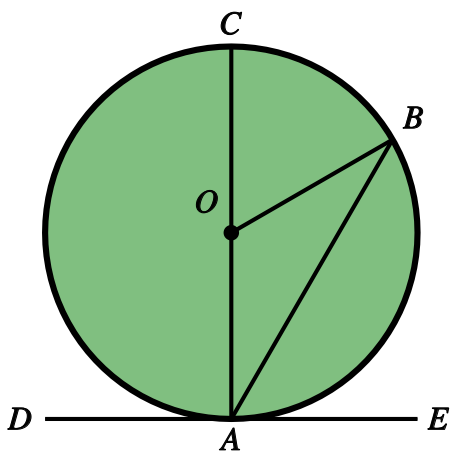
8) In the diagram below, angle  $ACB = 43^\circ$ .  
Find angle  $BDC$ , giving reasons for your answer.

[1]

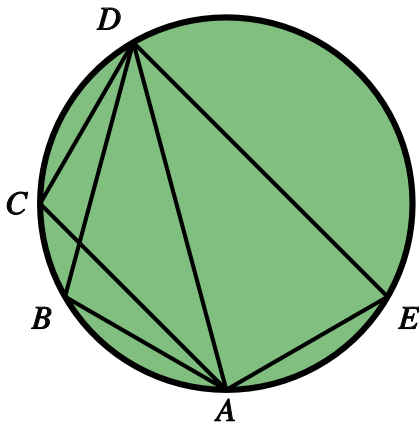


9) In the diagram below, angle  $BOC = 60^\circ$ .  
Find angle  $BAE$ , giving reasons for your answer.

[1]



10) In the diagram below, angle  $ABD = 94^\circ$ .



Find the following angles, giving reasons for your answers:

a) angle  $ACD$

b) angle  $AED$

[1]

## Solutions for the assessment Circle Theorems

1) a) angle  $ABC = 90^\circ$

b) angle  $ACB = 30^\circ$

Reasons: Angle in a semicircle is  $90^\circ$  and angle sum of a triangle is  $180^\circ$

2) angle  $ABC = 31^\circ$

Reasons: Angle between tangent and radius is  $90^\circ$  and angle sum of a quadrilateral is  $360^\circ$

3) angle  $ABC = 67.5^\circ$

Reason: Angle at centre is twice angle at circumference

4) angle  $ABC = 65.5^\circ$

Reason: Angle at centre is twice angle at circumference

5) a) angle  $BCD = 87^\circ$

b) angle  $CDA = 99^\circ$

Reason: Opposite angles in a cyclic quadrilateral sum to  $180^\circ$

6) angle  $OAB = 40.5^\circ$

Reason: Angle sum of a triangle is  $180^\circ$  and isosceles triangle

7) a) angle  $ABD = 51^\circ$

b) angle  $BAC = 30^\circ$

Reason: Angles in the same segment are equal

8) angle  $BDC = 47^\circ$

Reason: Angle in a semicircle + angle sum of triangle + angles in same segment

9) angle  $BAE = 60^\circ$

Reason: Angle at centre and circumference + angle between tangent and radius

or angles on a straight line + isosceles triangle + angle sum of triangle + angle between tangent and radius

10) a) angle  $ACD = 94^\circ$

b) angle  $AED = 86^\circ$

Reason: Angles in the same segment + cyclic quadrilateral