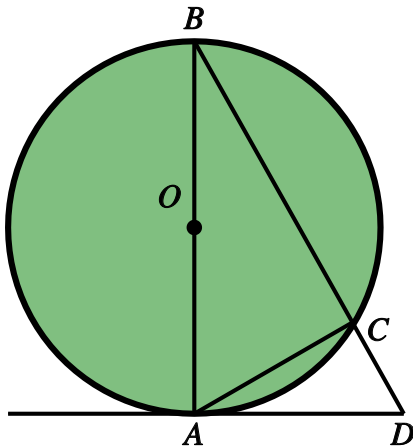


Circle Theorems (advanced) - reasons required

Name: _____ Class: _____ Date: _____

Mark / 8 %

1) In the diagram below, angle $ABC = 42^\circ$.



Find the following angles, giving reasons for your answers:

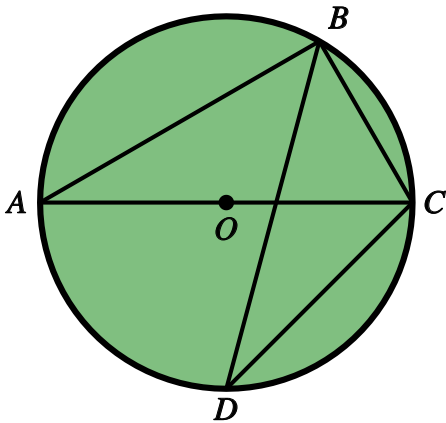
a) angle BAC

b) angle ADC

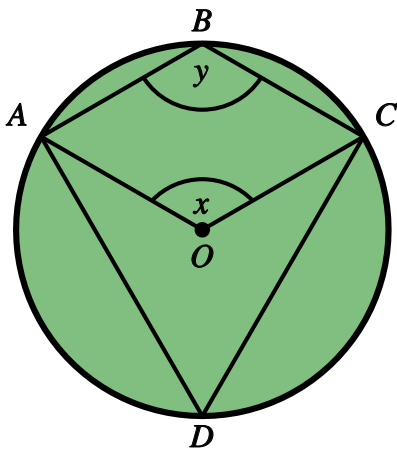
[1]

2) In the diagram below, angle $ACB = 38^\circ$.
Find angle BDC , giving reasons for your answer.

[1]



3) In the diagram below, angle $ADC = 39^\circ$.



Find the following angles, giving reasons for your answers:

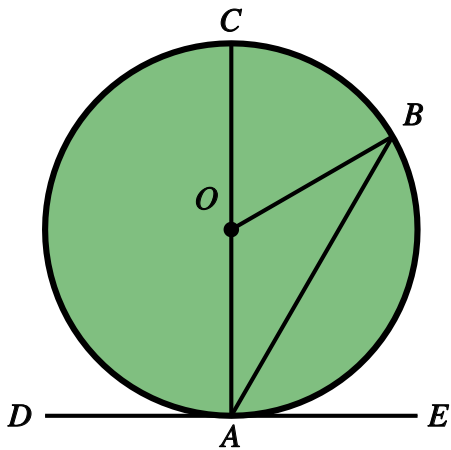
a) angle x

b) angle y

[1]

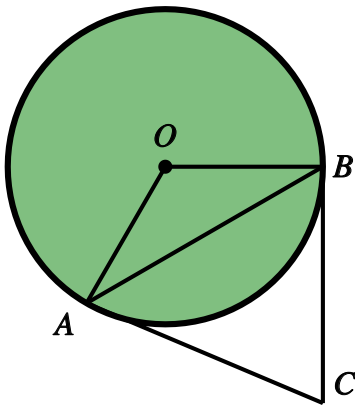
4) In the diagram below, angle $BOC = 30^\circ$.
Find angle BAE , giving reasons for your answer.

[1]

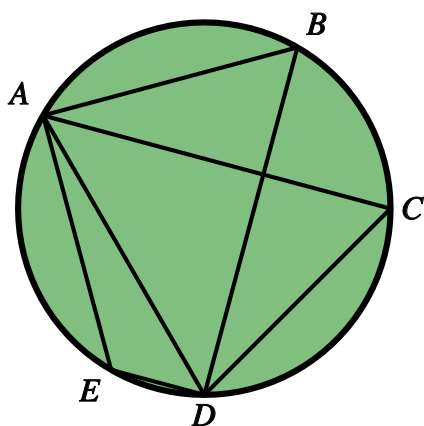


5) AB and BC are tangents to the circle shown below. Angle $ACB = 52^\circ$.
Find angle OAB , giving reasons for your answer.

[1]



6) In the diagram below, angle $ABD = 85^\circ$.



Find the following angles, giving reasons for your answers:

a) angle ACD

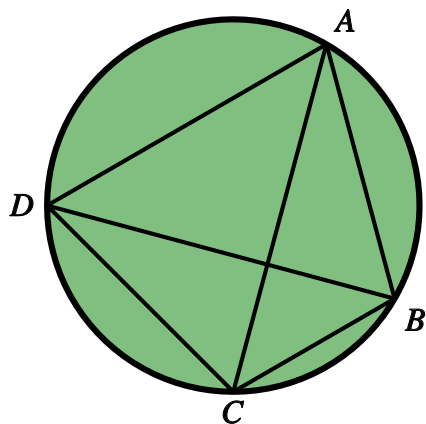
b) angle AED

[1]

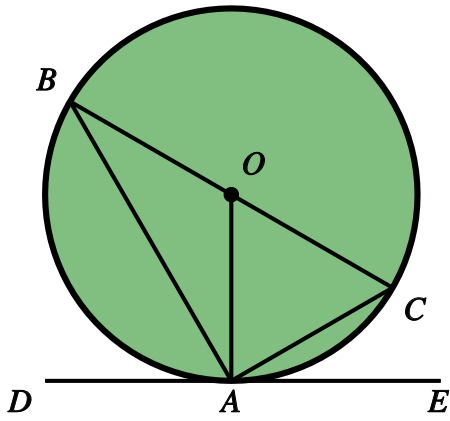
7) In the diagram below, angle $ADC = 85^\circ$ and angle $ACD = 39^\circ$.

Find angle DBC , giving reasons for your answer.

[1]



8) In the diagram below, angle $CAE = 25^\circ$.



Find the following angles, giving reasons for your answers:

a) angle OCA

b) angle DAB

[1]

Solutions for the assessment Circle Theorems (advanced) - reasons required

1) a) angle $BAC = 48^\circ$

b) angle $ADC = 48^\circ$

Reason: Angle in a semicircle + angle between tangent and radius + angle sum of triangle

2) angle $BDC = 52^\circ$

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

3) a) angle $x = 78^\circ$

b) angle $y = 141^\circ$

Reason: Angle at centre and circumference + cyclic quadrilateral

4) angle $BAE = 75^\circ$

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

5) angle $OAB = 26^\circ$

Reason: Angle between tangent and radius + isosceles triangle + angle sum of triangle

6) a) angle $ACD = 85^\circ$

b) angle $AED = 95^\circ$

Reason: Angles in the same segment + cyclic quadrilateral

7) angle $DBC = 56^\circ$

Reason: Angles in the same segment + cyclic quadrilateral

8) a) angle $OCA = 65^\circ$

b) angle $DAB = 65^\circ$

Reason: Alternate Segment Theorem + angle between tangent and radius + isosceles triangle

or angle between tangent and radius + isosceles triangle + angle in a semicircle