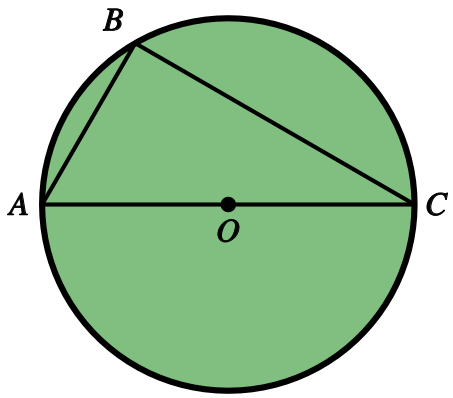
Revision 5: Circle Theorems

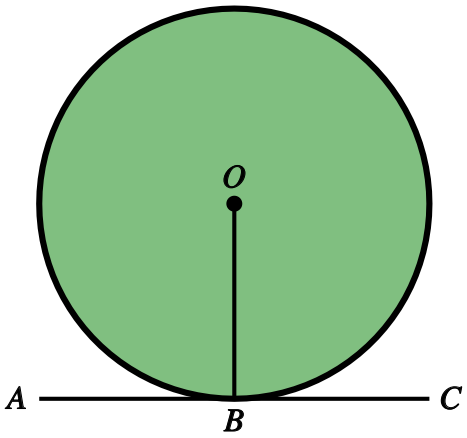
Name:	Class:	Date:

Mark	/ 27	%

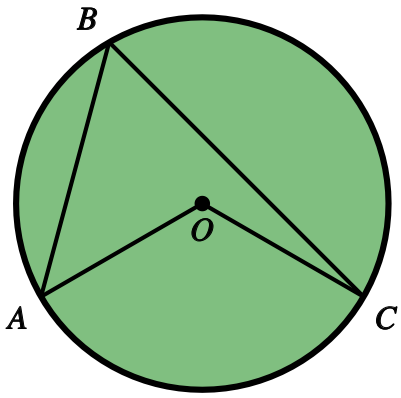
1) Find angle ABC in the diagram below, giving a reason for your answer. [1]



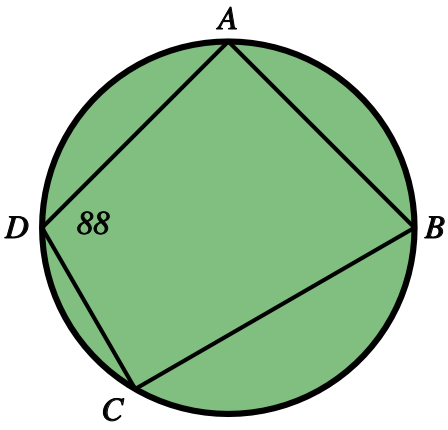
2) Find angle OBA in the following diagram, giving a reason for your answer. [1]



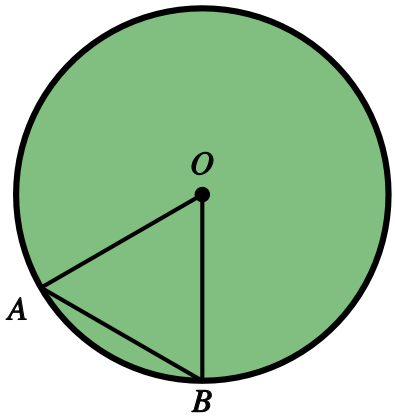
3) In the diagram below, angle AOC = 135°. [1]
Find angle ABC, giving a reason for your answer.



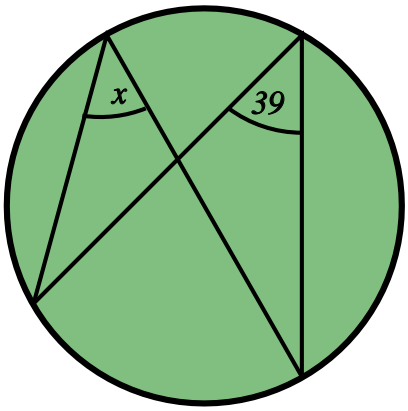
4) In the diagram below, angle ADC = 88°. [1]
Find angle ABC, giving a reason for your answer.



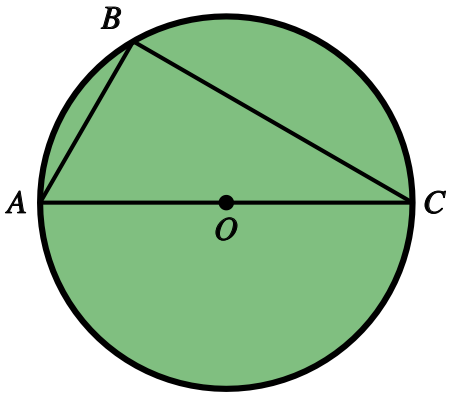
5) In the diagram below, angle OAB = 43°. [1]
Find angle OBA, giving a reason for your answer.



6) Find angle x in the following diagram, giving a reason for your answer. [1]



7) In the diagram below, angle BAC = 65°.



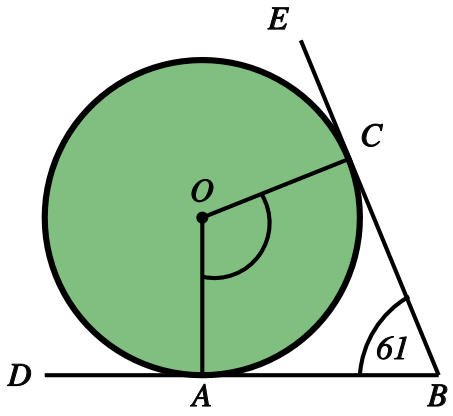
Find the following angles, giving reasons for your answers:

a) angle ABC

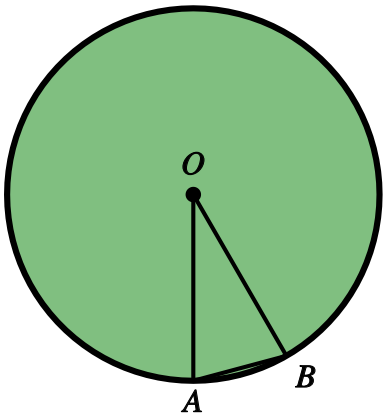
b) angle ACB

[1]

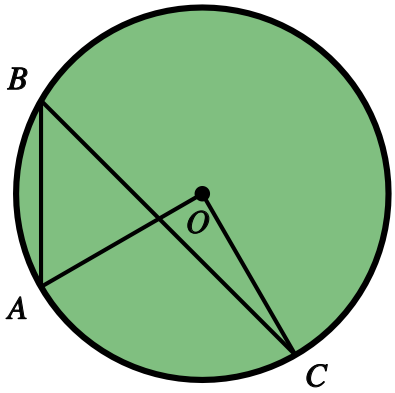
8) Find angle AOC in the following diagram, giving reasons for your answer. [1]



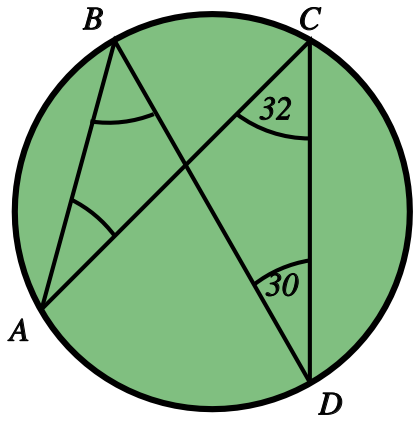
9) In the diagram below, angle ABO = 42°. [1]
Find angle AOB, giving reasons for your answer.



10) In the diagram below, angle ABC = 58°. [1]
Find angle AOC, giving a reason for your answer.



11) 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:

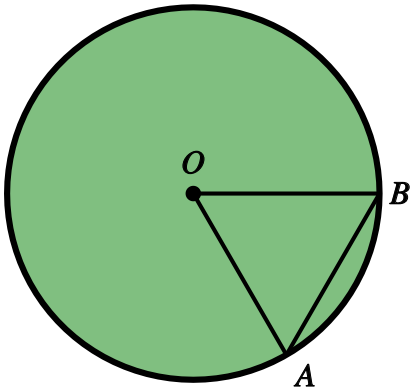
a) angle ABD

b) angle BAC

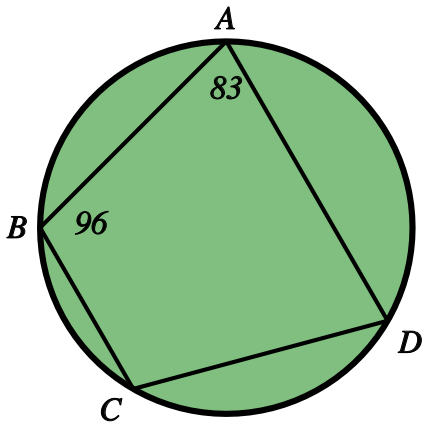
[1]

12) In the diagram below, angle AOB = 83°. [1]

Find angle OAB, giving reasons for your answer.



13) In the diagram below, angle DAB = 83° and angle ABC = 96°.



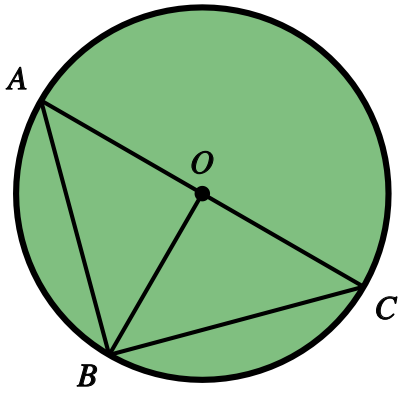
Find the following angles, giving reasons for your answers:

a) angle BCD

b) angle CDA

[1]

14) In the diagram below, angle BOC = 97°.



Find the following angles, giving reasons for your answers:

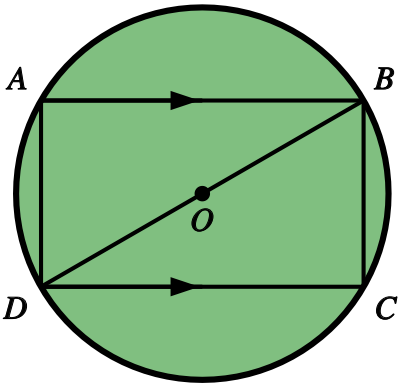
a) angle OCB

b) angle CBO

c) angle OAB

[1]

15) In the diagram below, angle ABD = 37°.



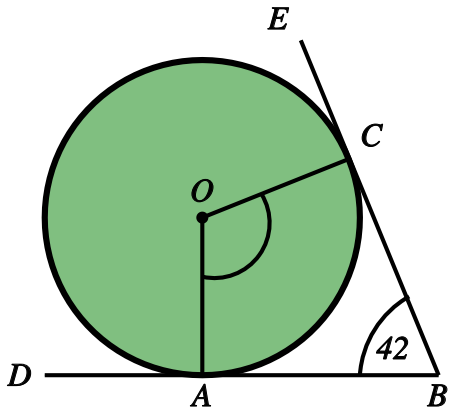
Find the following angles, giving reasons for your answers:

a) angle BDC

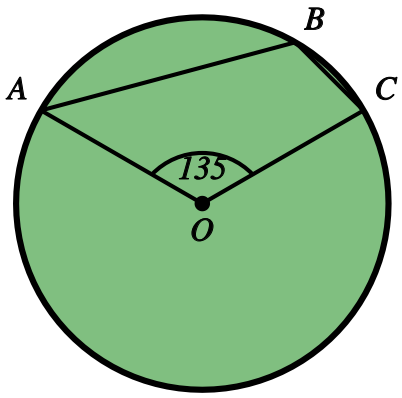
b) angle CBD

[1]

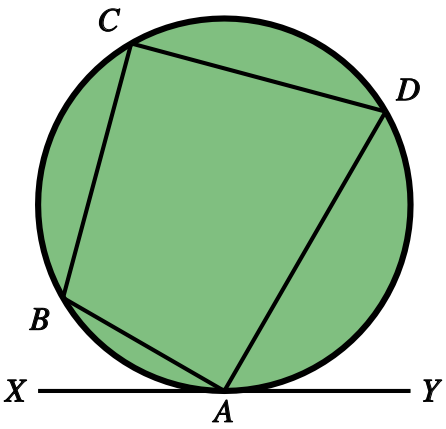
16) Find angle AOB in the following diagram, giving reasons for your answer. [1]



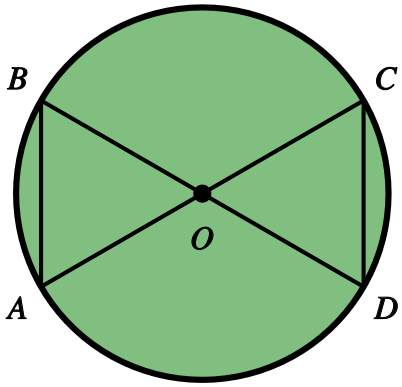
17) In the diagram below, angle AOC = 135°.' [1]
Find angle ABC , giving a reason for your answer.



18) In the diagram below, angle XAB = 46°. [1]
Angle YAD = 50°. Find angle BCD, giving a reason for your answer.



19) In the diagram below, angle BAC = 48°.



Find the following angles, giving reasons for your answers:

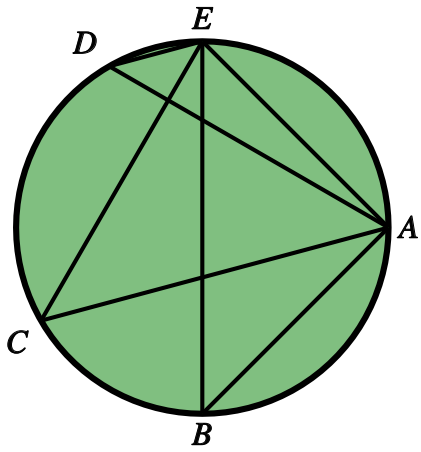
a) angle ABD

b) angle COD

c) angle CDO

[1]

20) In the diagram below, angle ABE = 44°.



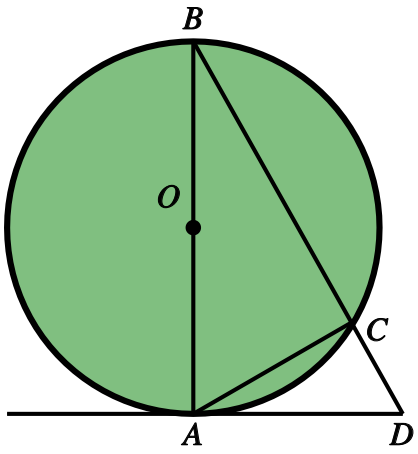
Find the following angles, giving reasons for your answers:

a) angle ACE

b) angle ADE

[1]

21) In the diagram below, angle ABC = 32°.



Find the following angles, giving reasons for your answers:

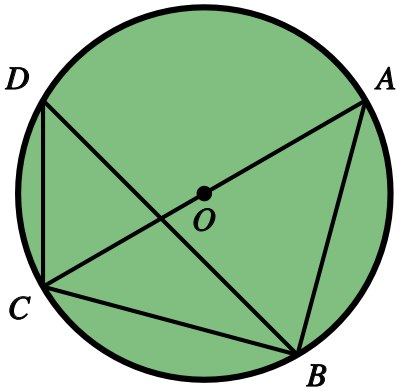
a) angle BAC

b) angle ADC

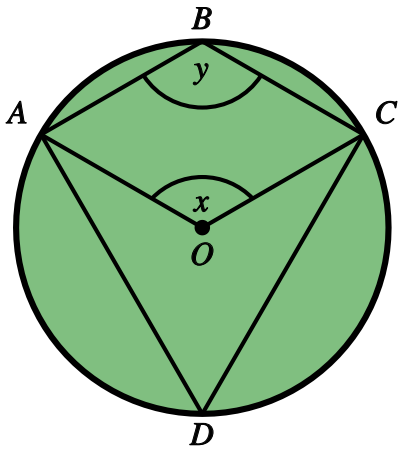
[1]

22) In the diagram below, angle ACB = 45°. [1]

Find angle BDC, giving reasons for your answer.



23) In the diagram below, angle ADC = 50°.



Find the following angles, giving reasons for your answers:

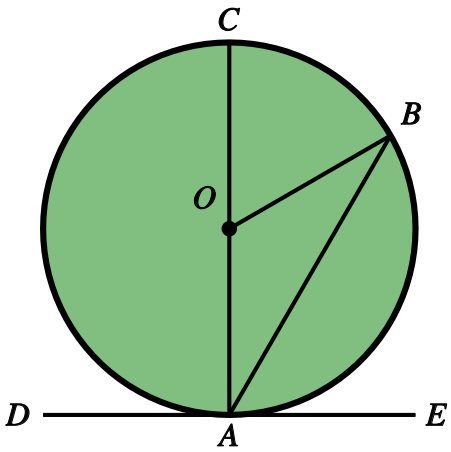
a) angle x

b) angle y

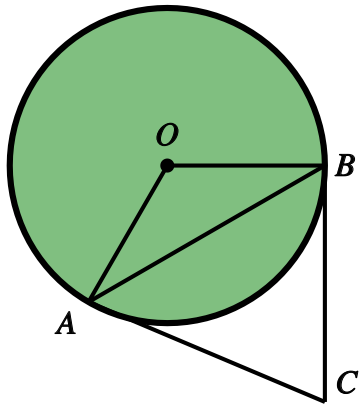
[1]

24) In the diagram below, angle BOC = 54°. [1]

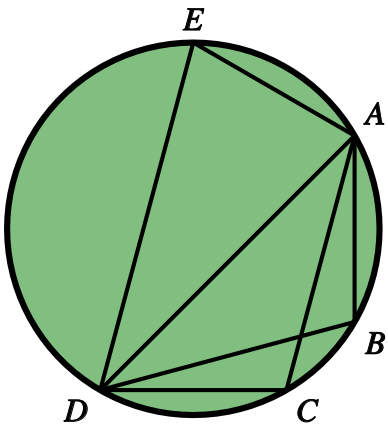
Find angle BAE, giving reasons for your answer.



25) AB and BC are tangents to the circle shown below. Angle OAB = 44°. [1]
Find angle ACB, giving reasons for your answer.



26) In the diagram below, angle ABD = 82°.



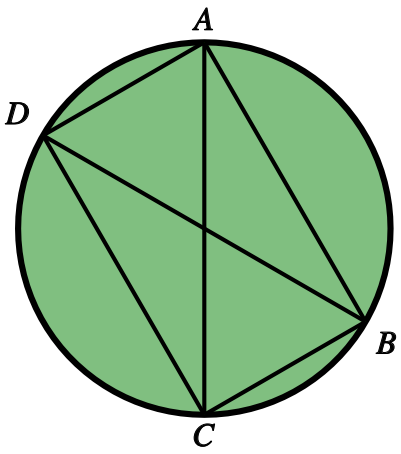
Find the following angles, giving reasons for your answers:

a) angle ACD

b) angle AED

[1]

27) In the diagram below, angle ADC = 94° and angle ACD = 40°. [1]
Find angle DBC, giving reasons for your answer.



Solutions for the assessment Revision 5: Circle Theorems

1) angle ABC = 90°
Reason: Angle in a semicircle is 90°

2) angle OBA = 90°
Reason: Angle between tangent and radius is 90°

3) angle ABC = 67.5°
Reason: Angle at centre is twice angle at circumference

4) Angle ABC = 92°
Reason: Opposite angles in a cyclic quadrilateral sum to 180°

5) angle OBA = 43°
Reason: Isosceles triangle

6) $x = 39°$
Reason: Angles in the same segment are equal

7) a) angle ABC = 90°
b) angle ACB = 25°
Reasons: Angle in a semicircle is 90° *and* angle sum of a triangle is 180°

8) angle AOC = 119°
Reasons: Angle between tangent and radius is 90° *and* angle sum of a quadrilateral is 360°

9) angle AOB = 96°
Reason: Isosceles triangle *and* angle sum of a triangle

10) angle AOC = 116°
Reason: Angle at centre is twice angle at circumference

11) a) angle ABD = 32°
b) angle BAC = 30°
Reason: Angles in the same segment are equal

12) angle OAB = 48.5°
Reason: Angle sum of a triangle is 180° *and* isosceles triangle

13) a) angle BCD = 97°
b) angle CDA = 84°
Reason: Opposite angles in a cyclic quadrilateral sum to 180°

14) a) angle OCB = 41.5°
b) angle CBO = 41.5°
c) angle OAB = 48.5°
Reason: Angle sum of a triangle is 180° + isosceles triangle + angles on a straight line

15) a) angle BDC = 37°
b) angle CBD = 53°
Reasons: Alternate angles *and* angle in a semicircle is 90°

16) angle AOB = 69°
Reasons: Angle between tangent and radius is 90° *and* congruent triangles

17) angle ABC = 112.5°
Reason: Angle at centre is twice angle at circumference

18) angle BCD = 96°
Reason: Alternate Segment Theorem

19) a) angle ABD = 48°
b) angle COD = 84°
c) angle CDO = 48°
Reason: Isosceles triangle + angle sum of a triangle + vertically opposite angles
or isosceles triangle + angles in the same segment are equal + angle sum of a triangle

20) a) angle ACE = 44°
b) angle ADE = 44°
Reason: Angles in the same segment are equal

21) a) angle BAC = 58°
b) angle ADC = 58°
Reason: Angle in a semicircle + angle between tangent and radius + angle sum of triangle

22) angle BDC = 45°
Reason: Angle in a semicircle + angle sum of triangle + angles in same segment

23) a) angle x = 100°
b) angle y = 130°
Reason: Angle at centre and circumference + cyclic quadrilateral

24) angle BAE = 63°
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

25) angle ACB = 88°
Reason: Angle between tangent and radius + isosceles triangle + angle sum of triangle

26) a) angle ACD = 82°
b) angle AED = 98°
Reason: Angles in the same segment + cyclic quadrilateral

27) angle DBC = 46°
Reason: Angles in the same segment + cyclic quadrilateral