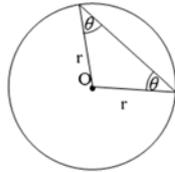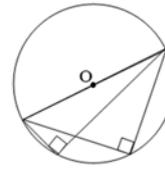| **GCSE – Mathematics Only**	**Tier:** Intermediate	**Grade:** B	GwE
Topic: Circle Theorems			

Starter

Fill in the missing words of circle properties

1) ……………is the distance from edge to edge passing through the centre

2) ……. is a part of the circumference

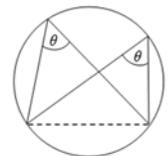3) ……………is a straight line that touches a circle at one point only

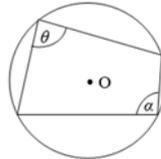**Top Tips! Do you know the circle rules?**

Isosceles triangle. Angles created by two radii and a chord
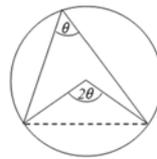
Angle inside a half circle (diameter) is 90°
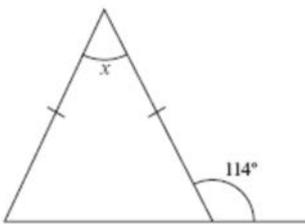
Angles inside the small segment are equal

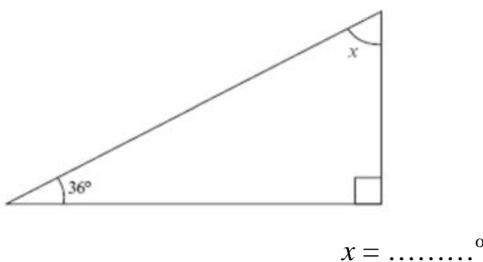Opposite angles in a cyclic quadrilateral add to 180°

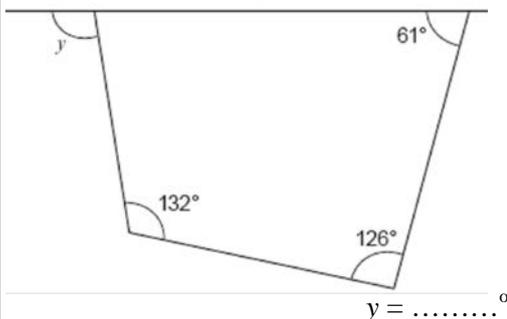Angle in the centre is double angle on the circumference

Skills:

Find the size of the angle marked *x*

114°

Find the size of angle *x*

36°

$x = ………°$

Find the size of angle *y*.
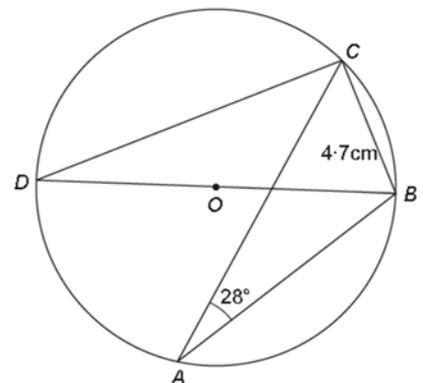
61°

132°

126°

$y = ………°$

Examination Question:

2016 November Unit 2 Higher Qu 8
In this question, you will be assessed on the quality of your organisation, communication and only accuracy in writing.

Points *A*, *B*, *C* and *D* lie on the circumference of a circle, centre *O*. *BD* is a diameter of the circle.
The straight line *BC* = 4.7 cm and *BAC* = 28°.

C
4·7cm
D
O
B
28°
A

Write down the size of *BDC*.
Hence, calculate the length *BD*.
You must show all your working. [5 + 2 OCW]
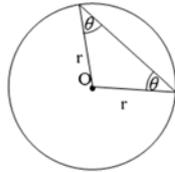
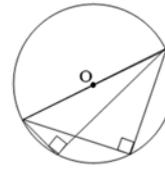**Assessment for Learning**

Video / QR code

Starter
Fill in the missing words of circle properties

1) **Diameter** is the distance from edge to edge passing through the centre

2) **Arc** is a part of the circumference

3) **Tangent** is a straight line that touches a circle at one point only
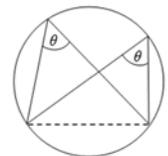
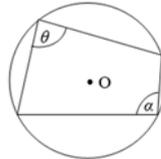## Top Tips! Do you know the circle rules?

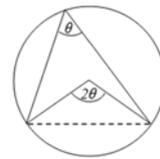Isosceles triangle. Angles created by two radii and a chord

Angle inside a half circle (diameter) is 90°

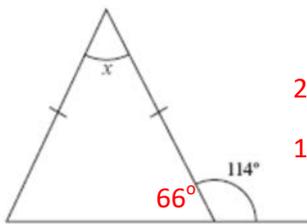Angles inside the small segment are equal

Opposite angles in a cyclic quadrilateral add to 180°

Angle in the centre is double angle on the circumference
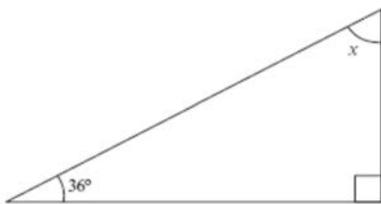
Skills:

Find the size of the angle marked x

2 x 66 = 132

180 – 132 = 48°

114°

66°
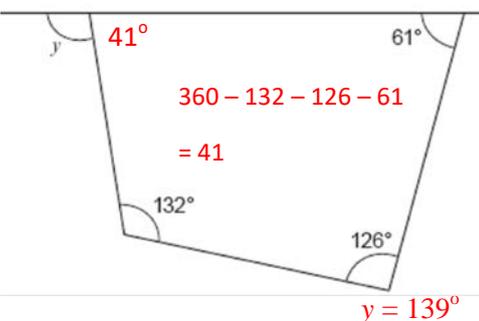
x = 48°

Find the size of angle x

36°

90 – 36 = 54 $x = 54^o$

Find the size of angle y.

41°   61°

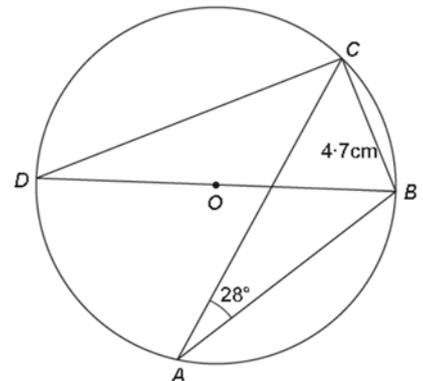360 – 132 – 126 – 61

= 41

132°

126°

$y = 139^o$

Examination Question:

2016 5 November Unit 2 Higher Qu 8
In this question, you will be assessed on the quality of your organisation, communication and only *accuracy in writing.*

Points *A*, *B*, *C* and *D* lie on the circumference of a circle, centre *O*.
BD is a diameter of the circle.
The straight line *BC* = 4.7 cm and *BAC* = 28°.

C

4·7cm

D   O   B

28°

A

Write down the size of *BDC*.
Hence, calculate the length *BD*.
You must show all your working. [5 + 2 OCW]

Angles inside a small segment are equal, therefore
BAC = BDC = 28⁰

Angle inside half a circle is 90° (DCB = 90°)

B

4.7cm

28°

C   D

SOH CAH TOA

BD is the hypotenuse

$Sin \theta = \frac{O}{H}$ $Sin28 = \frac{4.7}{H}$

$BD = \frac{4.7}{Sin27} = 10cm$

Assessment for Learning

Video / QR code