1 On a circle, which of these is **not** a straight line?

Circle your answer.

[1 mark]

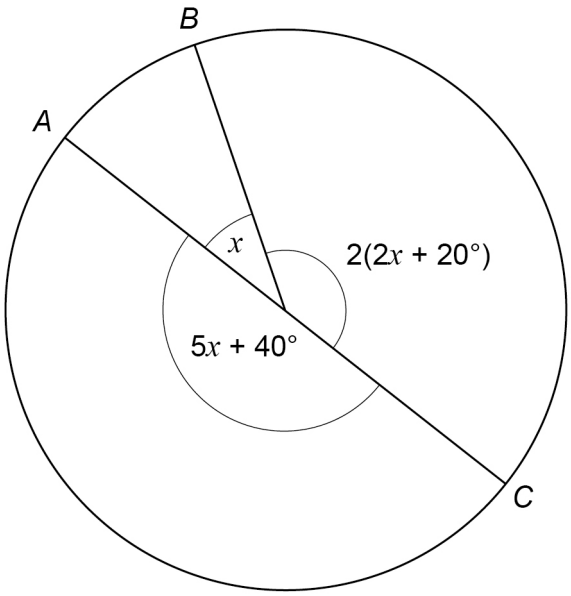
circumference radius chord diameter

1

2 *A*, *B* and *C* are three points on a circle.

The radii from *A*, *B* and *C* are shown.

Not drawn accurately



Is *AC* a diameter of the circle?

You **must** show your working.

[3 marks]

(1)

$x + 2(2x + 20^\circ)$

$= x + 4x + 40^\circ$ (1)

$= 5x + 40^\circ$ (1)

Yes.

3 What is the name of the **longest** possible chord in a circle?

Circle your answer.

[1 mark]

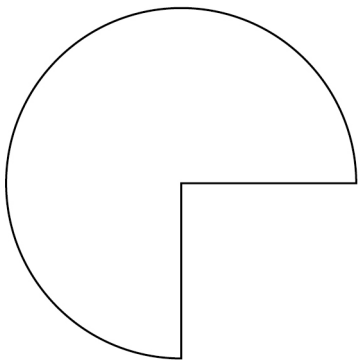
tangent circumference radius diameter

1

4 Here are two shapes, P and Q.

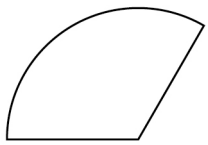
P

$\frac{3}{4}$ of a circle, radius 20 cm



Q

$\frac{1}{3}$ of a circle, radius 15 cm



Not drawn accurately

How many times bigger is the area of P than the area of Q?

You **must** show your working.

[4 marks]

Area of P : $\frac{3}{4} \times (\pi \times 20^2)$

$= \frac{3}{4} \times 400\pi$ (1)

$= 300\pi$ (1)

Area of Q : $\frac{1}{3} \times (\pi \times 15^2)$

$= \frac{1}{3} \times 225\pi$

$= 75\pi$ (1)

$\frac{P}{Q} = \frac{300}{75} = 4$ (1)

Answer 4

5 Which of these parts of a circle is a curve?

Circle your answer.

[1 mark]

circumference diameter centre radius

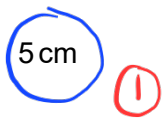
1

6 A circle has diameter 10 cm

Circle the radius.

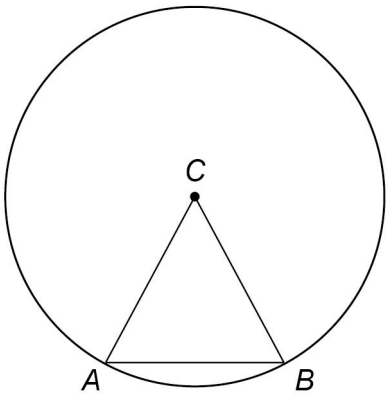
[1 mark]

5 cm 10 cm 20 cm 100 cm



7 *A* and *B* are points on a circle.

C is the centre of the circle.



Not drawn accurately

Tick **one** box for each statement.

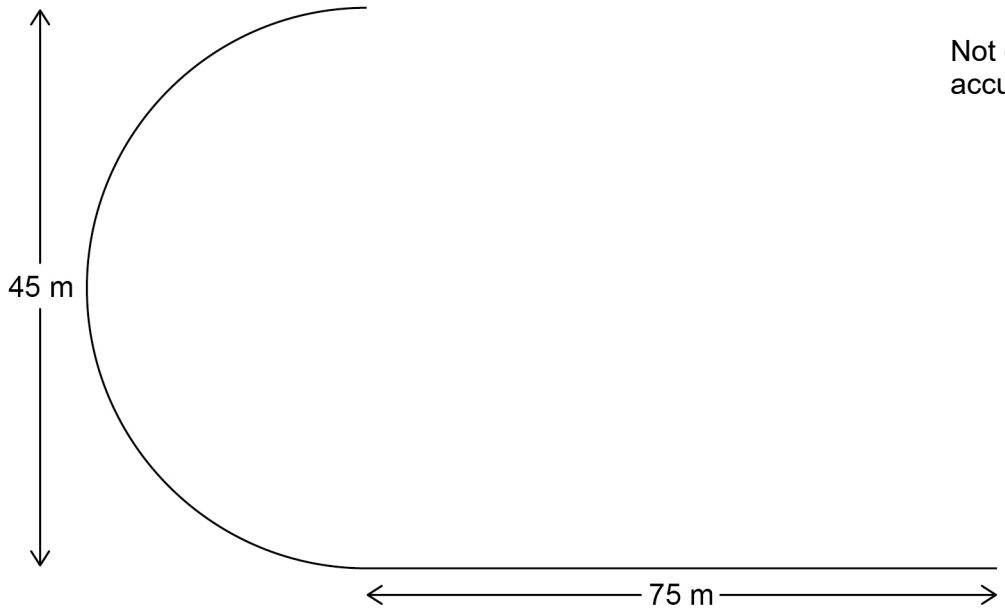
[3 marks]

	Definitely true	Might be true	Cannot be true
Line *AB* is a tangent to the circle	☐	☐	☑ (1)
AC is an arc of the circle	☐	☐	☑ (1)
Triangle *ABC* is equilateral	☐	☑ (1)	☐

8 Part of a running track is the arc of a semicircle joined to a straight line.

The semicircle has diameter 45 metres.

The straight line has length 75 metres.



Not drawn accurately

Abby runs once along this part of the track in 18 seconds.

Work out her average speed.

Give your answer to 2 significant figures.

[4 marks]

Arc length = $\frac{1}{2} \times \pi \times 45 = 22.5\pi$ (1)

Total length = $22.5\pi + 75$

$= 145.695$ (1)

Average speed = $\frac{145.695}{18}$ (1) $= 8.09$

$= 8.1$ (1)

Answer 8.1 m/s