

9

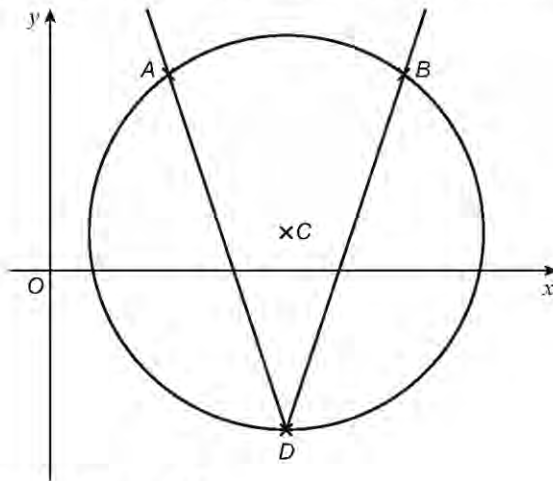
A circle with centre C has equation

$$(x - 12)^2 + (y - 2)^2 = 100$$

The graph with equation

$$y = |3x - 36| - 8$$

intersects the circle at the points A , B and D as shown in the diagram.



Point D is vertically below point C

9 (a)

State the coordinates of C

[1 mark]

9 (b)

State the coordinates of D

[1 mark]

9 (c)

The coordinates of A are $(a, 10)$

Find the value of a

Fully justify your answer.

[3 marks]

9 (d) (i)

Find, in radians, the angle ADB

Give your answer to **three** significant figures.

[2 marks]

9 (d) (ii)

Hence or otherwise find the length of the minor arc AB

Give your answer to **three** significant figures.

[2 marks]