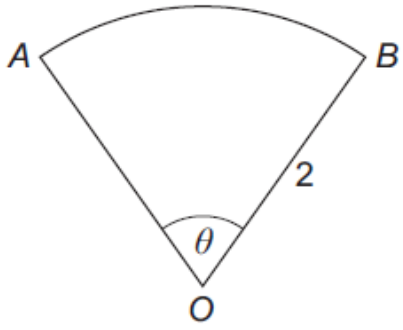
AQA – Trigonometry – A2 Mathematics P1

1. June/2020/Paper_1/No.3

The diagram shows a sector OAB of a circle with centre O and radius 2



The angle AOB is θ radians and the perimeter of the sector is 6

Find the value of θ

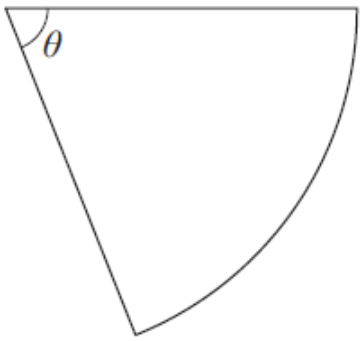
Circle your answer.

[1 mark]

1 $\sqrt{3}$ 2 3

2. June/2019/Paper_1/No.3

The diagram below shows a sector of a circle.



The radius of the circle is 4 cm and $\theta = 0.8$ radians.

Find the area of the sector.

Circle your answer.

[1 mark]

$1.28\,\text{cm}^2$ $3.2\,\text{cm}^2$ $6.4\,\text{cm}^2$ $12.8\,\text{cm}^2$

3. June/2019/Paper_1/No.12

(a) Show that the equation

$$2\cot^2 x + 2\operatorname{cosec}^2 x = 1 + 4\operatorname{cosec} x$$

can be written in the form

$$a\operatorname{cosec}^2 x + b\operatorname{cosec} x + c = 0$$

[2 marks]

(b) Hence, given x is obtuse and

$$2\cot^2 x + 2\operatorname{cosec}^2 x = 1 + 4\operatorname{cosec} x$$

find the exact value of $\tan x$

Fully justify your answer.

[5 marks]