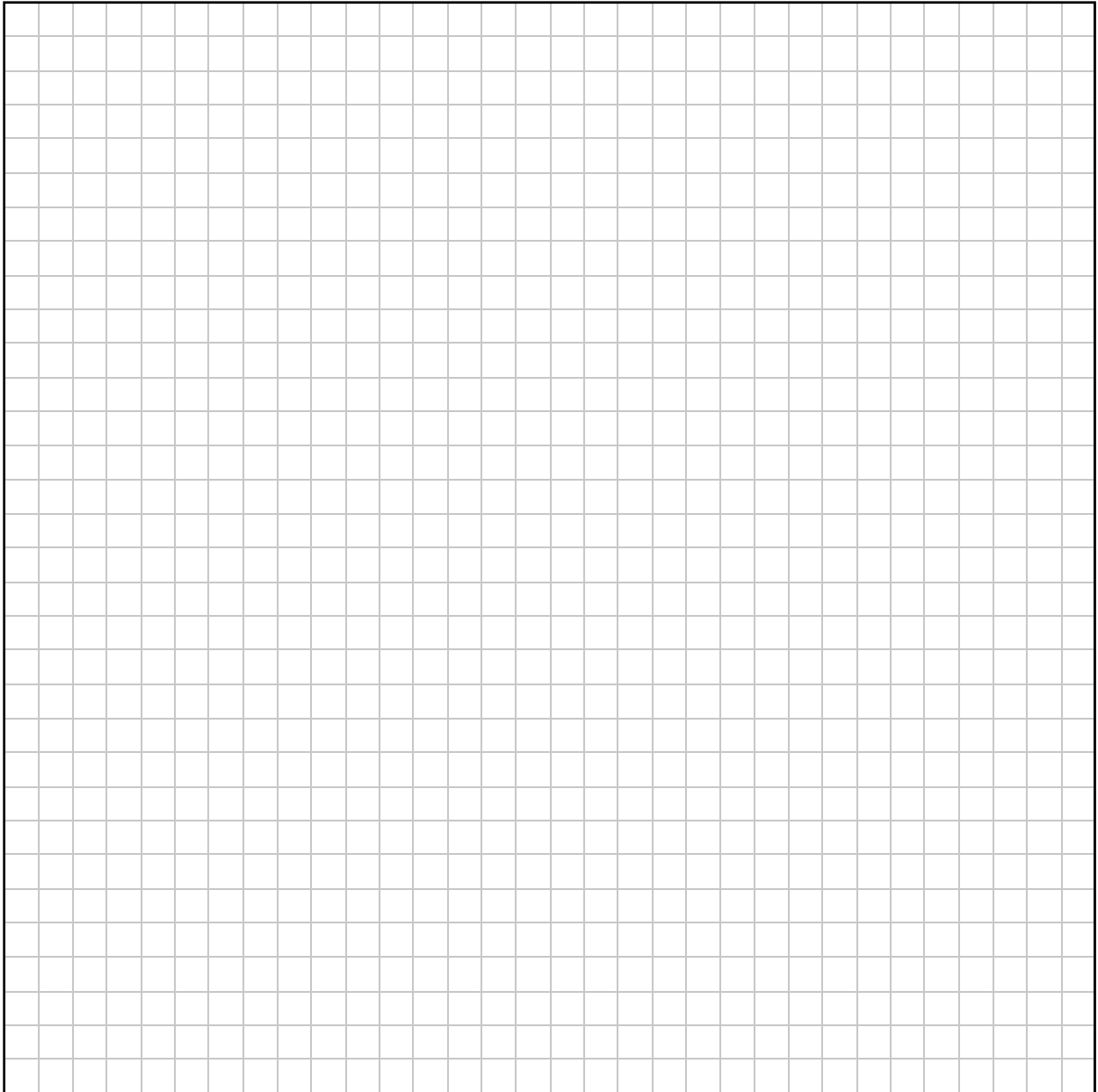**Question 4** **(25 marks)**

(a) Find the two values of θ for which $\tan\frac{\theta}{2} = -\frac{1}{\sqrt{3}}$, where $0 \leq \theta \leq 4\pi$.

(b) The diagram shows OAB, a sector of a circle of radius 7 cm with centre O.
In the sector, $|\angle BOA| = 1{\cdot}2$ radians.
The area of the shaded region is 21 cm².

Find $|BC|$.
Give your answer correct to 1 decimal place.

21 cm²

7 cm

1·2

B $\quad$ C $\quad$ O

7 cm