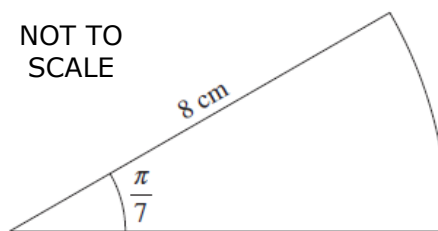




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- 2014 11g** The angle of a sector in a circle of radius 8 cm is $\frac{\pi}{7}$ radians, as shown in the diagram.
Find the exact value of the perimeter of the sector.

NOT TO
SCALE



2

$$\text{Arc length} = r\theta$$

$$= 8 \times \frac{\pi}{7}$$

$$= \frac{8\pi}{7}$$

$$\text{Perimeter} = 8 + 8 + \frac{8\pi}{7}$$

$$= 16 + \frac{8\pi}{7}$$

$$\therefore (16 + \frac{8\pi}{7}) \text{ cm.}$$

State Mean:

1.64

* These solutions have been provided by [projectmaths](#) and are not supplied or endorsed by BOSTES.

Board of Studies: Notes from the Marking Centre

This part was generally done well. Most candidates used the formula $l = r\theta$ to find the length of the arc to be $\frac{8\pi}{7}$ and added twice the length of the radius. Attempts were also made by some candidates to find the arc length using a fraction of the circumference.

Common problems were:

- interpreting $\frac{8\pi}{7}$ to be the perimeter of the sector;
- expressing the answer as a decimal instead of in exact form ;
- finding a perimeter using an incorrect arc length;
- using trigonometry to find the arc length.

http://www.boardofstudies.nsw.edu.au/hsc_exams/2014/pdf_doc/2014-maths.pdf