

The trigonometric functions

Length of an arc (1)



QUESTION 1 Find the arc length (in terms of π), of a sector of radius r cm and angle at the centre θ

a $r = 8, \theta = \frac{\pi}{4}$

b $r = 6, \theta = \frac{2\pi}{3}$

c $r = 75, \theta = \frac{8\pi}{5}$

d $r = 12, \theta = 60^\circ$

e $r = 18, \theta = 150^\circ$

f $r = 25, \theta = 72^\circ$

QUESTION 2 Find the length of the arc of the sector. (Give the answer correct to one decimal place.)

a radius 7 m, angle $\frac{3\pi}{4}$

b radius 2 km, angle 0.8 radians

c radius = 5.6 m, angle 156°

QUESTION 3 Find the radius of the sector with given arc length, l cm, and angle at the centre θ

a $l = 7\pi, \theta = \frac{\pi}{3}$

b $l = 14\pi, \theta = \frac{2\pi}{5}$

c $l = 10.5, \theta = 40^\circ$

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Length of an arc (2)

QUESTION 1 Find the angle, in radians in terms of π , at the centre of the sector with given radius, r cm, and arc length l cm:

a $r = 10, l = 5\pi$

b $r = 28, l = 12\pi$

c $r = 20, l = 24\pi$

QUESTION 2 Find the angle, to the nearest whole degree, at the centre of the sector with given radius r and arc length l :

a $r = 11 \text{ m}, l = 13 \text{ m}$

b $r = 7 \text{ km}, l = 4 \text{ km}$

c $r = 5 \text{ cm}, l = 22 \text{ cm}$

QUESTION 3 The diagram shows a sector with arc length 16 m and radius 4 m. Find the size of the angle θ , to the nearest whole degree.

