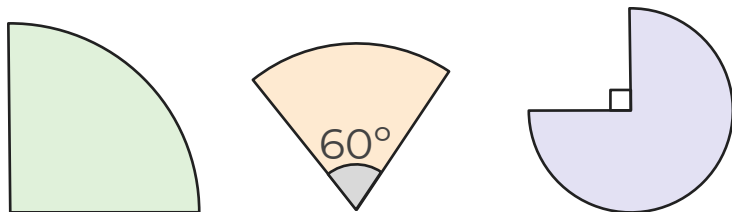Maths

Use the arc length to find the radius or angle of the sector
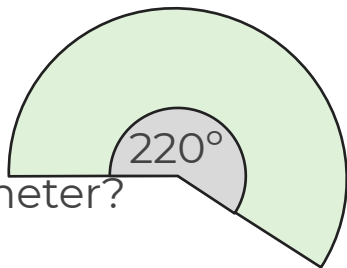
Miss Parnham

Use the arc length to find the radius or angle of the sector

1. Find the radius of each sector if they all have arc length of 6π cm.
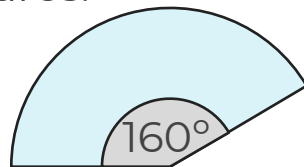

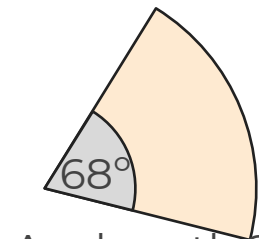2. This sector has an arc length of 7m.
a) What is the length of the radius?

b) What is the perimeter?

220°

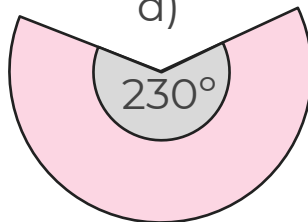3. Find the radius and perimeter of each sector, correct to 3 significant figures.
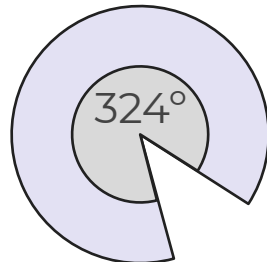
a)

160°
Arc length 17 cm

68°
Arc length 25 mm
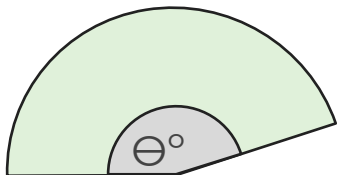
c)   d)

230°
Arc length 23.4 cm

324°
Arc length 2.8 m

Use the arc length to find the radius or angle of the sector

4. A sector has radius 12 cm and arc length 7π cm.

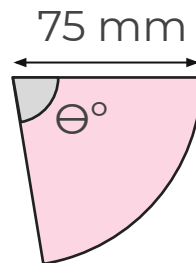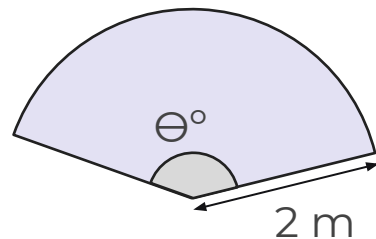a) What is the circumference of a circle with the same radius, in terms of π?

b) What fraction of the circumference is the arc length?
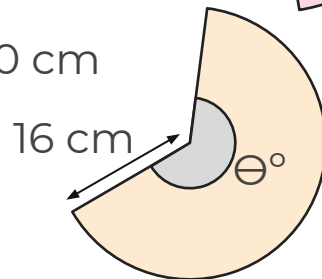
c) What is the angle of the sector?

5. Find the angle of each sector. Give your answer to nearest °.

a) Arc length 5 m b) Arc length 105 mm

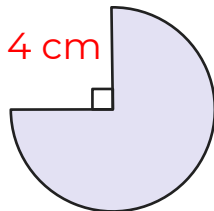75 mm

2 m

c) Arc length 70 cm

16 cm

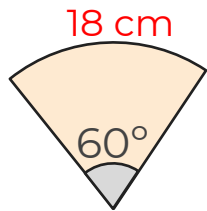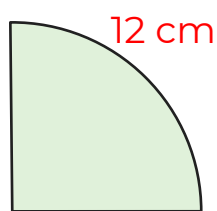# Answers

Use the arc length to find the radius or angle of the sector

1. Find the radius of each sector if they all have arc length of 6π cm.

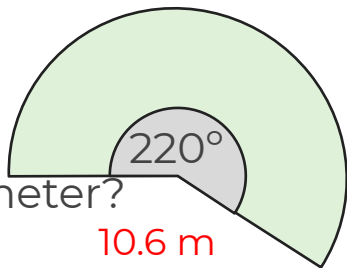12 cm

18 cm

4 cm

60°

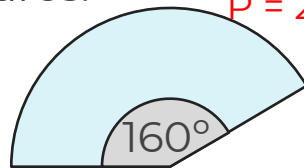2. This sector has an arc length of 7m.

a) What is the length of the radius?

1.82 m

b) What is the perimeter?

220°

10.6 m

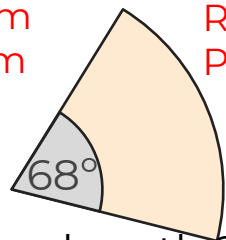3. Find the radius and perimeter of each sector, correct to 3 significant figures.

a)

R = 6.09 cm
P = 29.2 cm

R = 21.1 mm
P = 67.1 mm

160°

68°

Arc length 17 cm

Arc length 25 mm

c)

R = 5.83 cm
P = 35.1 cm

d)

230°

324°
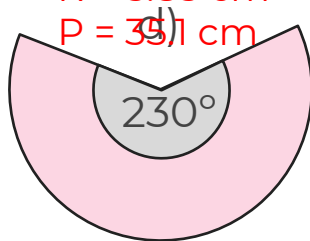
R = 0.495 m
P = 3.79 m
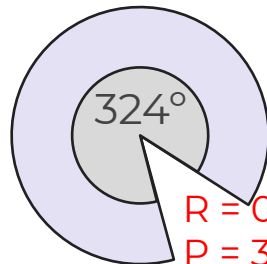
Arc length 23.4 cm

Arc length 2.8 m
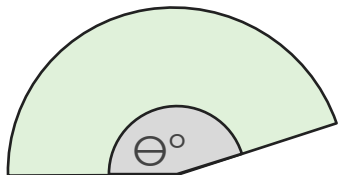
Use the arc length to find the radius or angle of the sector

4. A sector has radius 12 cm and arc length 7π cm.

a) What is the circumference of a circle with the same radius, in terms of π?   24π cm
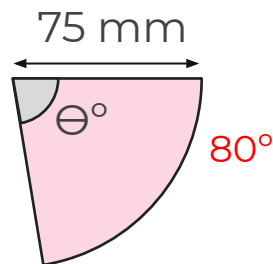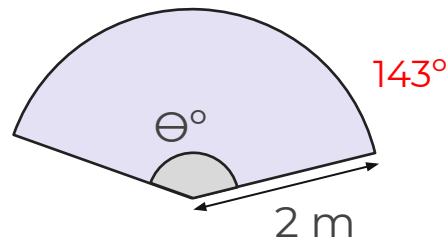
b) What fraction of the circumference is the arc length? $\frac{7}{24}$

c) What is the angle of the sector?   105°

5. Find the angle of each sector. Give your answer to nearest °.

a) Arc length 5 m b) Arc length 105 mm

143°

2 m

75 mm

80°

c) Arc length 70 cm

16 cm

251°