Provincial Education Department Sabaragamuwa-Week School

Week -1

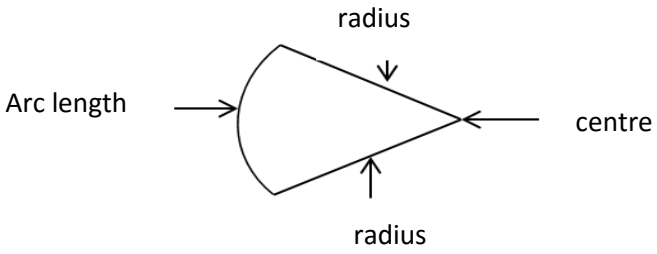
Subject: Mathematics

Prepared by- K.V.C.P.Jayathilaka
(Kg/Dehi/Rajasinghe Central Collage Ruwanwella

Grade 10

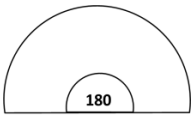
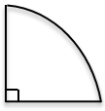
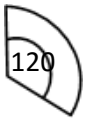
1 Perimeter

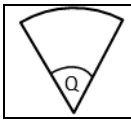
Sector of a Circle



- Sector of a circle is a portion which is bounded by two radii and a part of the circumference.

Finding the arc length of a sector of a circle

Sector	Length of the arc as a part of the circumference	Angle at the centre	Arc length
	1	360^0	$\frac{360}{360} \times 2\pi r$
	$\frac{1}{2}$	180^0	$\frac{180}{360} \times 2\pi r = \frac{1}{2} \times 2\pi r$
	$\frac{1}{4}$	90^0	$\frac{90}{360} \times 2\pi r = \frac{1}{4} \times 2\pi r$
	$\frac{1}{3}$	120^0	$\frac{120}{360} \times 2\pi r = \frac{1}{3} \times 2\pi r$

	$\frac{Q}{360}$	θ	$\frac{Q}{360} \times 2\pi r$

EX: Find arc length of the sector

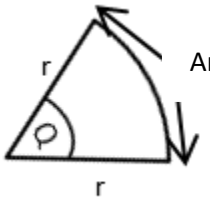
Length of the arc $= 2\pi r \times \frac{Q}{360}$

$$= \cancel{2} \times \frac{22}{\cancel{7}} \times \cancel{7} \times \frac{\cancel{30}}{\cancel{360}}$$

$$= 3.66 \text{ cm}$$

Do the exercise 1.1

Finding the perimeter of a sector of a circle



Arc length

Perimeter of a sector of a circle = arc length +radius +radius

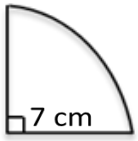
= arc length + 2 ×radius

Perimeter of a sector of a circle of radius r with angle at the centre θ

* Perimeter $= 2\pi r \times \frac{\theta}{360} + 2r$

Ex :

The figure denotes a sector of a circle of radius 7 cm with angle at the centre 90^0. Find its perimeter.



Arc length $= 2\pi r \times \frac{Q}{360}$

$$= \cancel{2} \frac{\cancel{22}}{\cancel{7}} \times \cancel{7} \times \frac{\cancel{90}}{\cancel{360}}$$

Arc length = 11 cm

$\therefore$ Perimeter of the sector = 11 cm + 7 cm + 7 cm

= 25 cm

Do the exercise 1.2 and 1.3