Provincial Education Department Sabaragamuwa-Week School
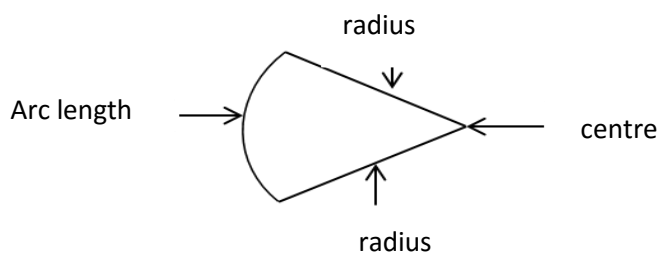
Week -7ᵗʰ - 13ᵗʰ Feb, 2021

Subject: Mathematics

**Prepared by- K.V.C.P.Jayathilaka
(Kg/Dehi/Rajasinghe Central Collage Ruwanwella**
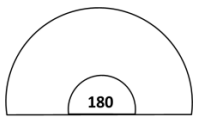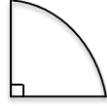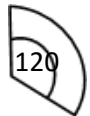
Grade 10

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	$\dfrac{360}{360} \times 2\pi r$
	$\dfrac{1}{2}$	180^0	$\dfrac{180}{360} \times 2\pi r = \dfrac{1}{2} \times 2\pi r$
	$\dfrac{1}{4}$	90^0	$\dfrac{90}{360} \times 2\pi r = \dfrac{1}{4} \times 2\pi r$
	$\dfrac{1}{3}$	120^0	$\dfrac{120}{360} \times 2\pi r = \dfrac{1}{3} \times 2\pi r$

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

EX: Find arc length of the sector

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

$$= \overset{1}{2} \times \dfrac{\overset{11}{22}}{7} \times 7 \times \dfrac{\overset{}{30}}{\underset{12\ 6\ 3}{360}}$$

$= \underline{3.66 \text{ cm}}$

Do the exercise 1.1

<u>Finding the perimeter of a sector of a circle</u>
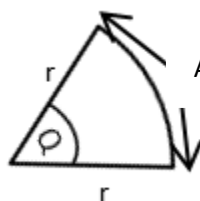
Arc length

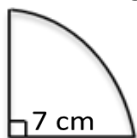Perimeter of a sector of a circle $=$ arc length +radius +radius

$=$ arc length $+ 2 \times$ radius

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

* $\boxed{\text{Perimeter} = 2\pi r \times \dfrac{\theta}{360} + 2r}$

Ex :

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

7 cm

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

$$= \overset{}{2} \times \dfrac{\overset{11}{22}}{7} \times 7 \times \dfrac{\overset{}{90}}{\underset{4\quad 2}{360}}$$

Arc length $= 11$ cm

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

$= \underline{25 \text{ cm}}$

Do the exercise 1.2 and 1.3