



Department of Education Sabaragamuwa – Weekly School

Subject : Mathematics

6th week

Grade 10

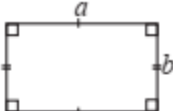
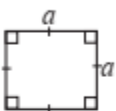
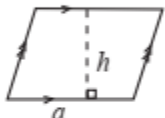

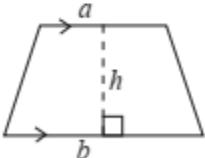
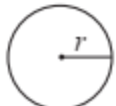
Translated by : U.V.S.S.Gunathilaka,
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AREA

Competency : Makes use of a limited space in an optimal manner by investigating the area.

Competency Level : Solves problems related to the area of plane figures containing sectors.

01. Study the table and remind your previous knowledge about the lesson area.

Name	Plane Figure	How the area is calculated	Formula for the area (A)
Rectangle		length \times breadth	$A = a \times b$
Square		(length of a side) ²	$A = a^2$
Parallelogram		base \times altitude	$A = a \times h$
Triangle		$\frac{1}{2} \times$ base \times altitude	$A = \frac{1}{2} \times a \times h$
Trapezium		$\frac{1}{2} \times$ sum of the lengths of the parallel sides \times altitude	$A = \frac{1}{2}(a + b) \times h$
Circle		$\pi \times$ (radius) ²	$A = \pi r^2$

- Do the review exercise in page no 66 .

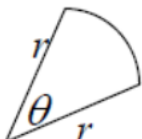
Angles for the sectors

180° , 90° , 45° and 60°

- Let each student in your group select one of the given angles.
- Draw the sector with the angle you selected as the angle at the centre, while paying attention to the centre of the circle you have been given and the radius which is marked.
- Shade the sector.
- Find what fraction of the area of the whole figure the area of the sector is by folding your figure.
- Taking the radius of the circle you have been provided with to be r , find the area of the shaded sector in terms of the area πr^2 of the circle.
- Record the results of the members of your group in the following table.

Angle at the centre	Area of the sector as a fraction of the area of the circle	<u>Angle at the centre of the sector</u> 360	Area of the sector of radius r
180°			
90°			
45°			
60°			
70°			
θ			

- Build up a relation between the information in column 2 and column 3.
- Use this relation to write an expression for the area of a sector of a circle of radius r with angle at the centre 70°

-  Obtain an expression in terms of π , r and θ for the area of a sector of a circle of radius r with angle at the centre θ .

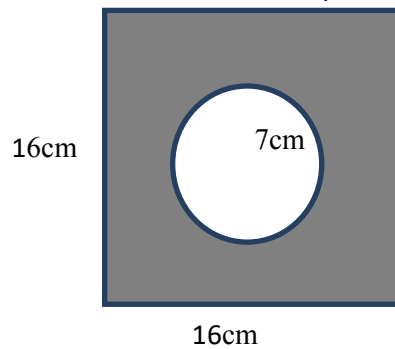
Let take the area of the sector of the circle is A ,

$$A = \frac{\dots\dots\dots}{360^\circ} \times \pi \times \dots\dots^2$$

Fill in the blanks.

Do the Exercise 6.1 by using the given formulae .

02. Find the area of the shaded part.



The area of the square =

The area of the circle =.....

The area of the shaded part =.....

Do the Excercise 6.2 .