

Jender Heart High School, Sec.-33B chd.

Class: VII and VIII

Subject: Mathematics

Teacher: Deep ti

Topic:

In this week we will understand the topic of 'Perimeter' and 'Area'.

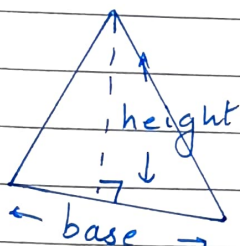


→ Perimeter (the length of outer boundary)
→ Area (the surface enclosed by a plane closed figure)

Now let us see few formulas:

Area of different triangles:

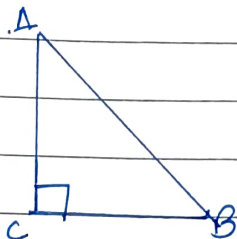
1.



Area of triangle whose base and height is given:

$$\text{Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

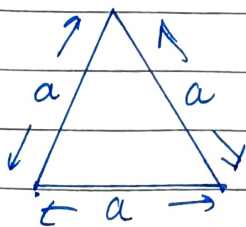
2.



Area of right angled triangle:

$$\begin{aligned} \text{Area} &= \frac{1}{2} \times \text{Product of two sides containing } 90^\circ \\ &= \frac{1}{2} \times AC \times BC \end{aligned}$$

3.



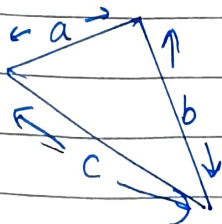
Area of equilateral Δ .

$$\text{Area} = \frac{\sqrt{3}}{4} a^2$$

$$\text{height} = \frac{\sqrt{3}}{2} a$$

Where $\sqrt{3} = 1.732$

4.



Heron's formula

$$S = \frac{a+b+c}{2}$$

(S is semi perimeter)

$$\text{Area} = \sqrt{S(S-a)(S-b)(S-c)}$$

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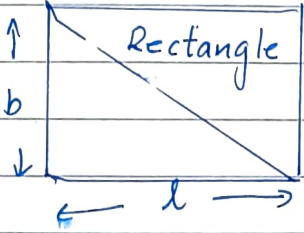
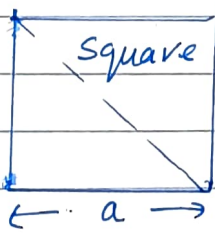
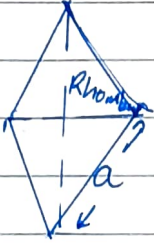
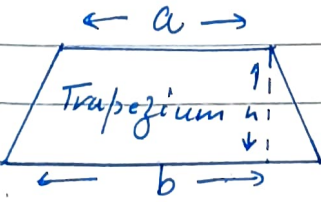
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Topic: Perimeter and Area

Teacher: Ms. Gupta

Now, we will see the formulas of different Quadrilateral (Rectangle, Square, Rhombus, Trapezium)

Quadrilateral	Perimeter/diagonal	Area
1. 	$P = 2(l+b)$ diagonal = $\sqrt{l^2+b^2}$	$A = l \times b$
2. 	$P = 4 \times a$ diagonal = $a\sqrt{2}$	$A = (a)^2$
3. 	$P = 4 \times a$	$A = \frac{1}{2} \times d_1 \times d_2$ (Where d_1 & d_2 are the diagonals)
4. 	$P = \text{Sum of four Sides}$	$A = \frac{1}{2} (\text{Sum of // sides}) \times \text{height}$ $= \frac{1}{2} (a+b) \times h$

Units:

- For perimeter — m/cm/km
- For Area — m^2 /cm²/km²/Hectare/Are

$$1 \text{ Hectare} = 10000 \text{ m}^2$$

$$1 \text{ Are} = 100 \text{ m}^2$$

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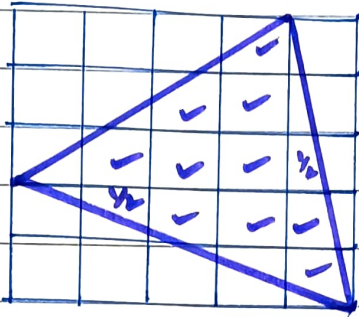
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Teacher: Ms. Deepika

We can find the area by Square Grid
(by counting squares)



Steps

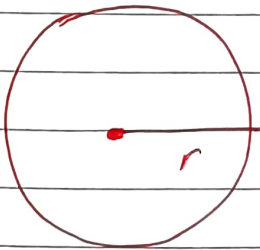
- Count the full square as (1 sq. units)
- Count the more than half also as 1 sq. units
- Count half squares as $\frac{1}{2}$
- Ignore the squares less than $\frac{1}{2}$

full squares $\neq$ more than half = 10 sq. units

half squares = $(\frac{1}{2} + \frac{1}{2}) = 1 \text{ cm}^2$

Total area = $10 + 1 = 11 \text{ cm}^2$

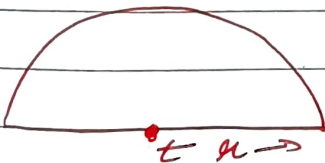
• formulas base on Circle:



Circumference of circle = $2\pi r$

Area of circle = πr^2

Where 'r' is the radius of the circle.



Circumference of Semicircle = $\pi r + 2r$

Area of Semi circle = $\frac{1}{2} \pi r^2$

