

GEOMETRY & MENSURATION

Complete SSC CGL Examination Notes

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1. TRIANGLES

Types of Triangles

Type	Properties	Area Formula
Equilateral	All sides equal, all angles 60°	$(\sqrt{3}/4) \times \text{side}^2$
Isosceles	Two sides equal, two angles equal	$(b/4)\sqrt{(4a^2 - b^2)}$
Scalene	All sides different	$\sqrt{[s(s-a)(s-b)(s-c)]}$
Right Angled	One angle 90°	$\frac{1}{2} \times \text{base} \times \text{height}$

Important Theorems

Pythagoras Theorem: $a^2 + b^2 = c^2$ (for right triangle)

Apollonius Theorem: $AB^2 + AC^2 = 2(AD^2 + BD^2)$ where AD is median

Basic Proportionality Theorem: If $DE \parallel BC$, then $AD/DB = AE/EC$

2. CIRCLES

Circle Formulas

$$\text{Area} = \pi r^2$$

$$\text{Circumference} = 2\pi r$$

$$\text{Diameter} = 2r$$

$$\text{Arc Length} = (\theta/360) \times 2\pi r$$

$$\text{Sector Area} = (\theta/360) \times \pi r^2$$

$$\text{Segment Area} = \text{Sector Area} - \text{Triangle Area}$$

3. QUADRILATERALS

Area Formulas

Shape	Area Formula	Perimeter
Square	side^2	$4 \times \text{side}$
Rectangle	$\text{length} \times \text{breadth}$	$2(l + b)$
Parallelogram	$\text{base} \times \text{height}$	$2(a + b)$
Rhombus	$\frac{1}{2} \times d_1 \times d_2$	$4 \times \text{side}$
Trapezium	$\frac{1}{2} \times (a + b) \times h$	Sum of all sides

4. 3D SHAPES

Volume & Surface Area

Shape	Volume	Surface Area
Cube	a^3	$6a^2$
Cuboid	$l \times b \times h$	$2(lb + bh + hl)$
Cylinder	$\pi r^2 h$	$2\pi r(h + r)$
Cone	$(\frac{1}{3})\pi r^2 h$	$\pi r(l + r)$
Sphere	$(\frac{4}{3})\pi r^3$	$4\pi r^2$

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