Chapter 12 - Heron's Formula

S.no	Term	Description
1	Mensuration	It is branch of mathematics which is concerned about the measurement of length ,area and Volume of plane and Solid figure
2	Perimeter	a)The perimeter of plane figure is defined as the length of the boundary b)It units is same as that of length i.e. m ,cm,km
3	Area	a)The area of the plane figure is the surface enclosed by its boundary b) It unit is square of length unit. i.e. m^2 , km^2

Unit Conversion

1 Meter	10 Decimeter	100 centimeter
1 Decimeter	10 centimeter	100 millimeter
1 Km	10 Hectometer	100 Decameter
1 Decameter	10 meter	1000 centimeter

1 square Meter	100 square Decimeter	10000 square centimeter

1 square Decimeter	100 square centimeter	10000 square millimeter
1 Hectare	100 square Decameter	10000 square meter
1 square myraimeter	100 square kilometer	10^8 square meter

Perimeter and Area of Different Figure

N	Shape	Perimeter/height	Area
1	Right angle triangle Base =b, Height =h Hypotenuse=d	P=b+h+d Height =h	$A = \dfrac{1}{2}bh$
2	Isosceles right angled triangle Equal side =a	$p = 2a + a\sqrt{2}$ Height=a	$A = \dfrac{1}{2}a^2$
3	Any triangle of sides a,b ,c	P=a+b+c	$A = 2\sqrt{s(s-a)(s-b)(s-c)}$ Where $s = \dfrac{a+b+c}{2}$ This is called Heron's formula (sometimes called Hero's formula) is named after Hero of Alexandria
4	Square Side =a	P=4a	**A=a²**

5	Rectangle of Length and breadth L and B respectively	P=2L +2B	A=LX B
6	Parallelograms Two sides are given as a and b	P=2a+2b	A= BaseX height When the diagonal is also given ,say d Then $A = 2\sqrt{s(s-a)(s-b)(s-d)}$ Where $s = \dfrac{a+b+d}{2}$
7	Rhombus Diagonal d_1 and d_2 are given	$p = 2\sqrt{d_1^2 + d_2^2}$ $s = \dfrac{1}{2}\sqrt{d_1^2 + d_2^2}$	$A = \dfrac{1}{2}d_1 d_2$
8	Quadrilateral a) All the sides are given a,b,c ,d b) Both the diagonal are perpendicular to each other c) When a diagonal and perpendicular to diagonal are given	a) P=a+b+c+d	a) $A = \sqrt{(s-a)(s-b)(s-c)(s-d)}$ where $s = \dfrac{a+b+c+d}{2}$ b) $A = \dfrac{1}{2}d_1 d_2$ where d_1 and d_2 are the diagonal c) $A = \dfrac{1}{2}d(h_1 + h_2)$ where d is diagonal and h_1 and h_2 are perpendicular to that