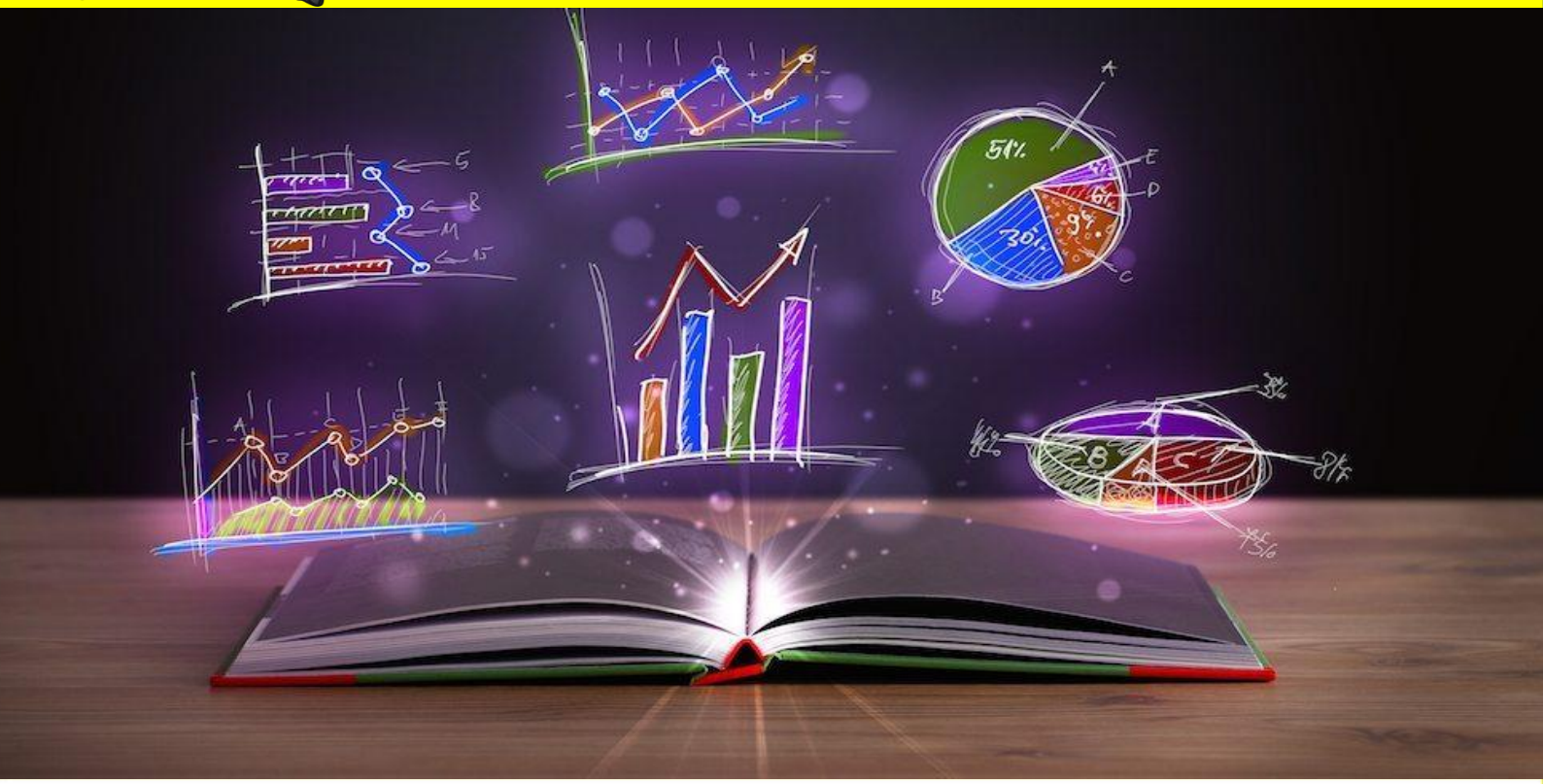
MATHLETE

(अक्सर पूछा करते हैं.....)

Classes – 9th to 10th

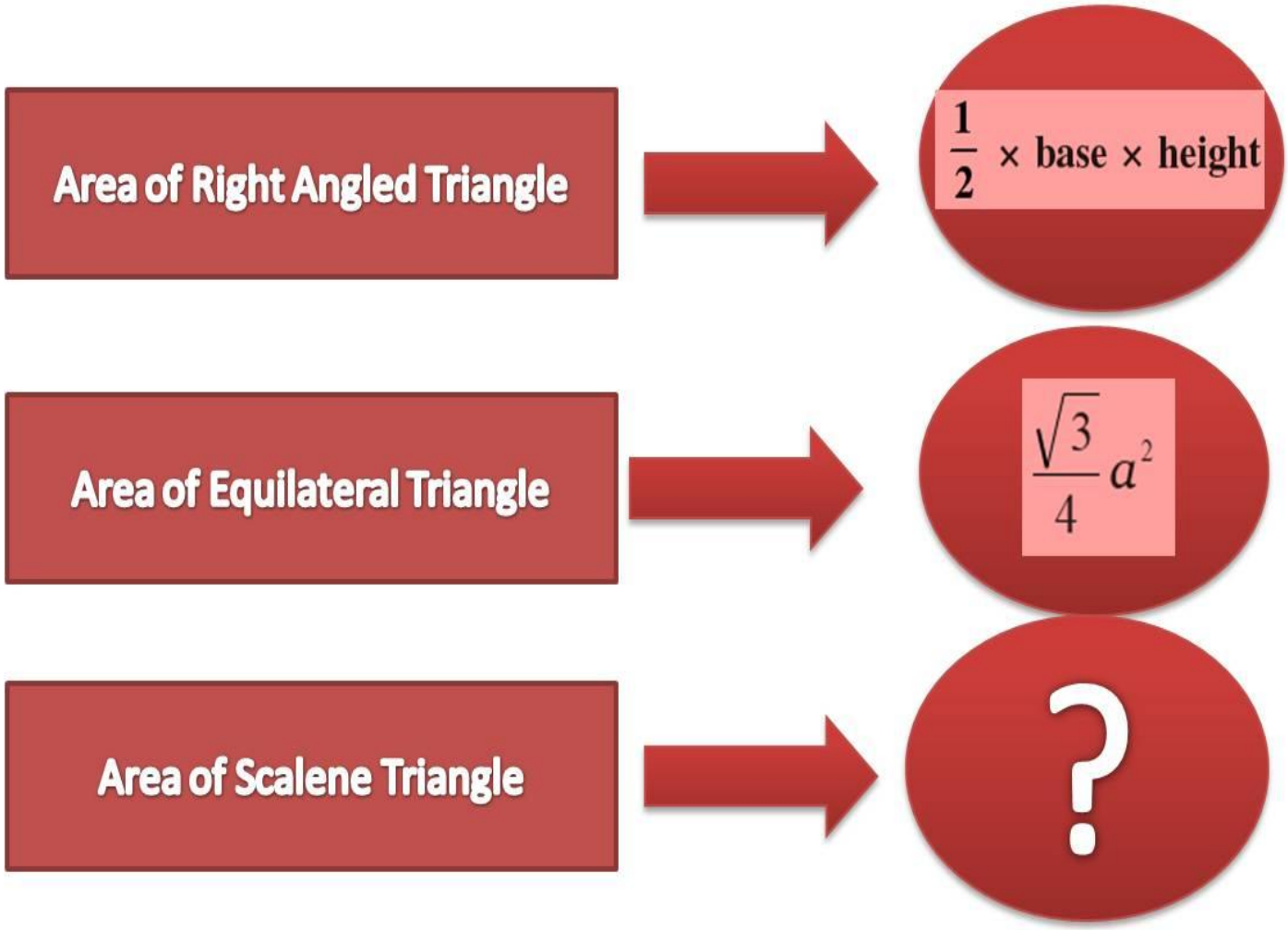
Series 5



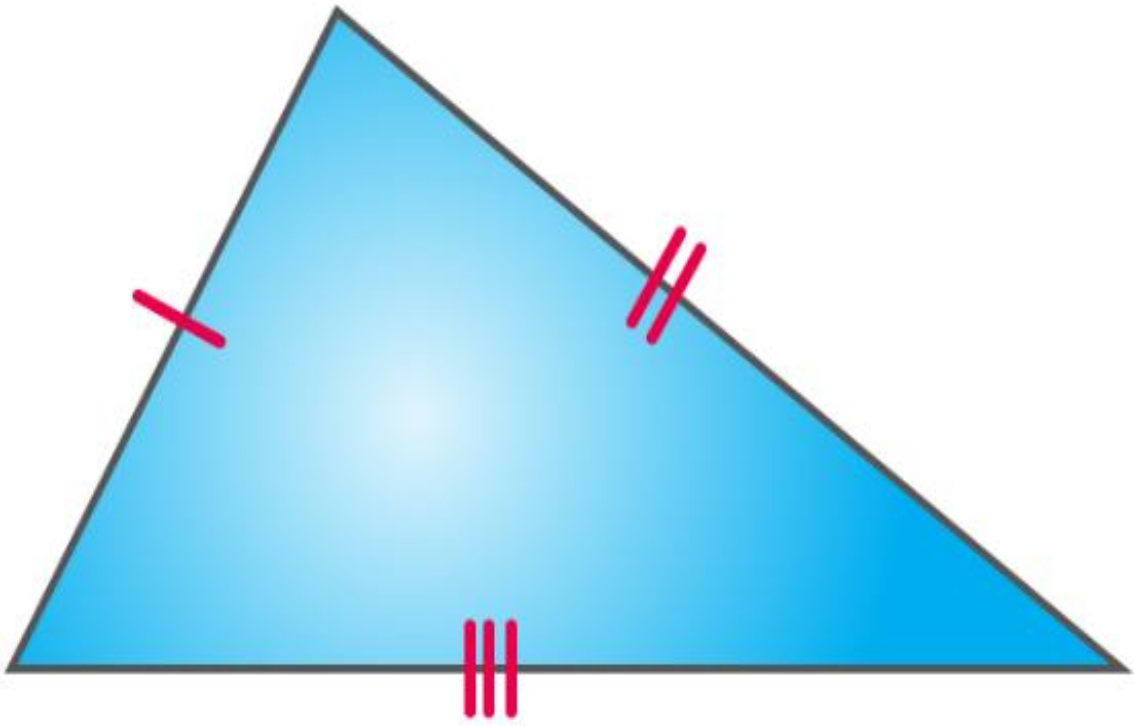
MATHEMATICAL LITERACY GROUP- CHANDIGARH

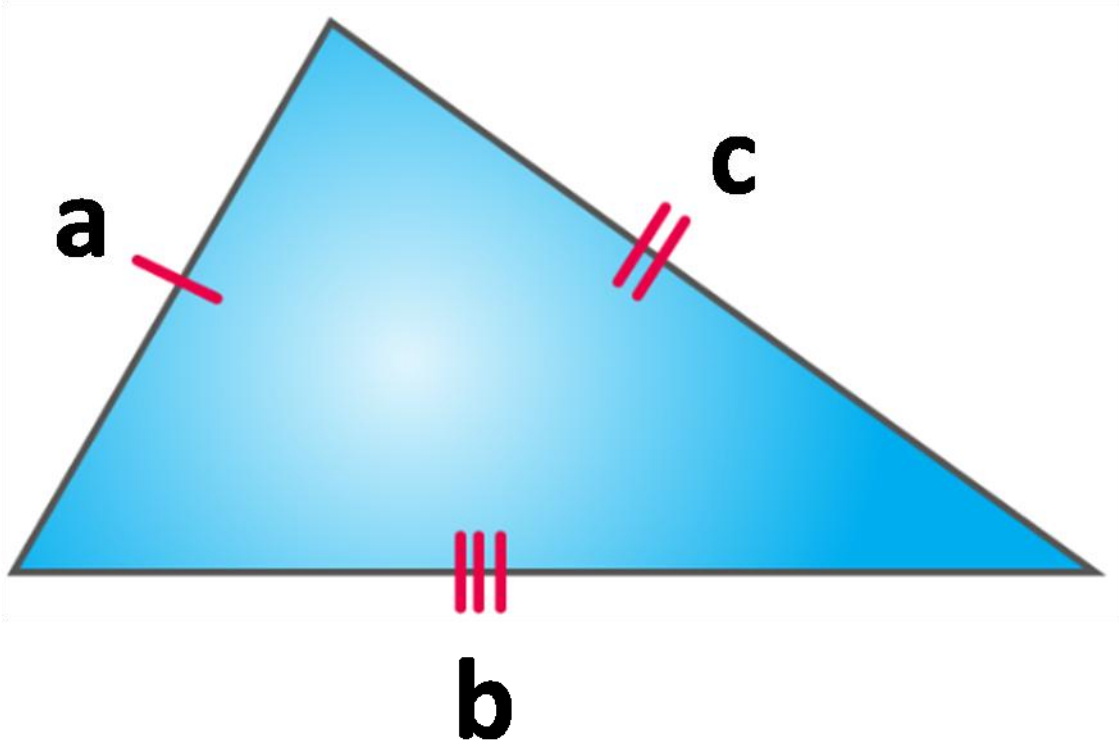
AREA OF THE TRAINGLE

Area of Different Types of triangles



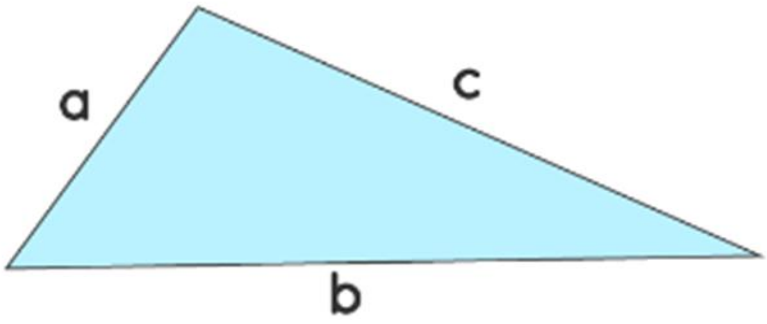
Scalene Triangle : Scalene Triangle is a triangle that has all its sides of different lengths. It means all the sides of a scalene triangle are unequal and all the three angles are also of different measures.





How do we calculate the area of this type of triangle in which all the sides are different ????

Area of triangle with different sides (Heron Formula)



$$\text{Area, } A = \sqrt{s(s-a)(s-b)(s-c)}$$

where,

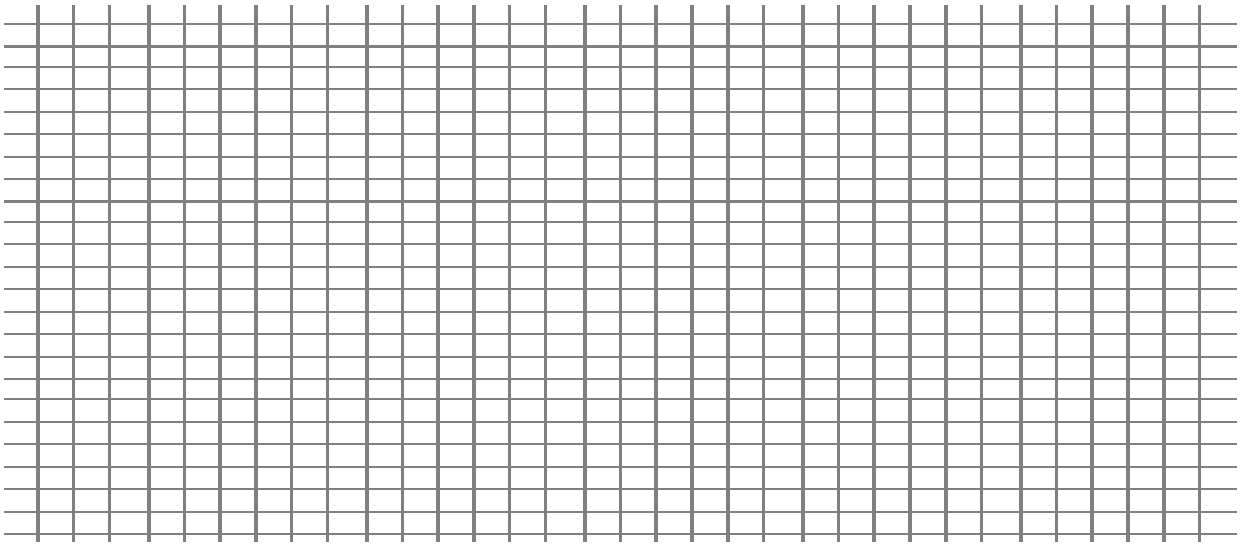
$$s = \text{semi-perimeter} = \frac{a+b+c}{2}$$

Heron was born in about 10AD possibly in Alexandria in Egypt. He worked in applied mathematics. His works on mathematical and physical subjects are so numerous and varied that he is considered to be an encyclopedic writer in these fields. His geometrical works deal largely with problems on mensuration written in three books. Book I deals with the area of squares, rectangles, triangles, trapezoids (trapezia), various other specialised quadrilaterals, the regular polygons, circles, surfaces of cylinders, cones, spheres etc. In this book, Heron has derived the famous formula for the area of a triangle in terms of its three sides.

Heron (10 C.E. – 75 C.E.)

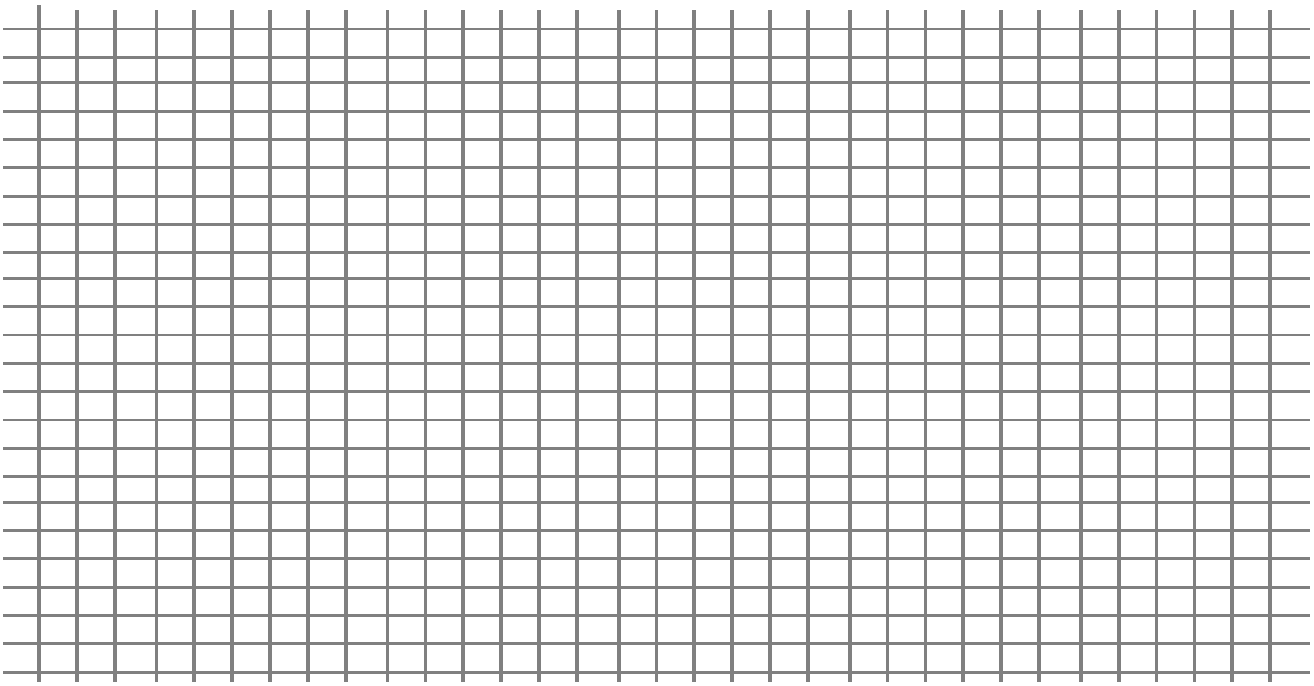
Task: 1

FIND THE PERIMETER AND AREA OF SCELENE TRAINGLE WHOSE SIDES ARE 8 CM, 6 CM AND 4 CM ?



Task: 2

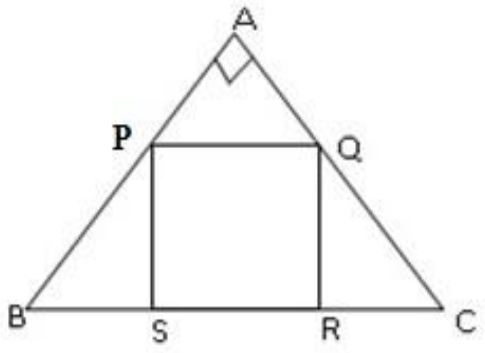
FIND THE AREA OF THE TRAINGLE IF THE PERIMETER IS 36 CM AND SIDES ARE 13 CM AND 14 CM ?



TASK: 3

A FARMER HAS AN ISOCECELS RIGHT TRIANGULAR FIELD TO SOW DIFFERENT TYPES OF CROPS. HE DECIDED TO SOW WHEAT, BARELY, MAIZE AND RICE IN DIFFERET PORTIONS OF THE FIELD. HE DIVIDED HIS FIELD INTO 3 SMALL TRIANGLES AND A SQUARE. HE SOWS BIGGER PORTION OF SQUARE WITH RICE AND 3 TRIANGLES WITH WHEAT, BARLEY AND MAIZE. ALSO, THE AREA OF SQUARE PORTION IS 100 M^2. ON THE BASIS OF THE GIVEN INFORMATION, ANSWER THE FOLLOWING QUESITONS:

A) IF THE FARMER WANTS TO GIVE ONE TRAINGULAR PORTION TO HIS WIFE, 1 TRAINGULAR PORITON TO HIS DAUGHTER, 1 TRAINGULAR PORTION FOR HIMSELF AND THE SQUARE PORTION FOR HIS SON. FIND THE AREA OF THE FIELD THAT EACH ONE GETS ?



ANS:_____

B) IF HE SOWS RICE AT THE RATE OF RS. 50 PER SQUARE METER, FIND THE TOTAL COST OF SOWING SQUARE PORTION OF THE FIELD.

ANS:_____

C) FIND THE AREA OF THE WHOLE TRIANGULAR FIELD?

ANS:_____

D) IF FARMER WANTS TO PUT FLAGS AT THE EQUAL INTERVALS OF 2 M AROUND HIS SQUARE FIELD. HOW MANY FLAGS WILL BE NEEDED?

ANS:_____