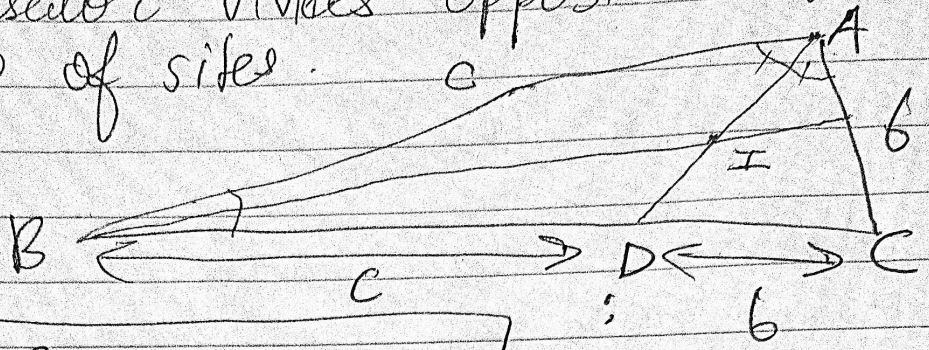
Tips & Tricks

① Angle bisector divides opposite side in the ratio of sides.

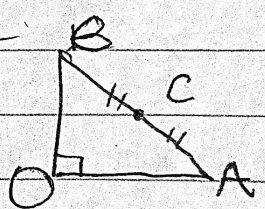


$$\frac{BD}{DC} = \frac{AB}{AC}$$

Very useful property

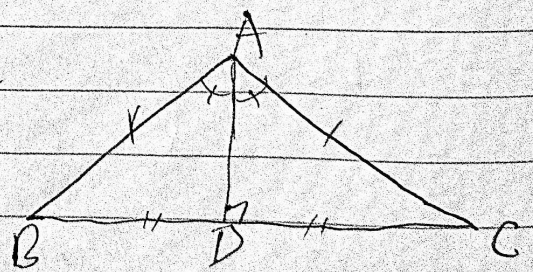
coordinates of D can easily be (calculated) using section formula

② If its a right angle triangle
orthocentre is the vertex
Circumcentre is midpoint of Hypotenuse



③ If its isoceles triangle

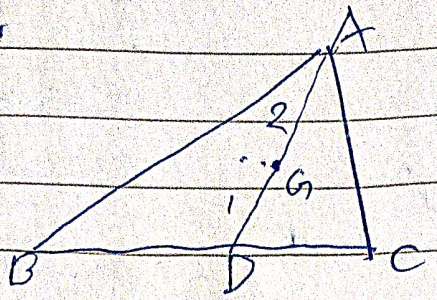
AD = Altitude + Median + Perpendicular bisector + angle bisector.
AD is all of them.



④ If its equilateral triangle

$I = O = C = G$ | $r = \frac{R}{2}$

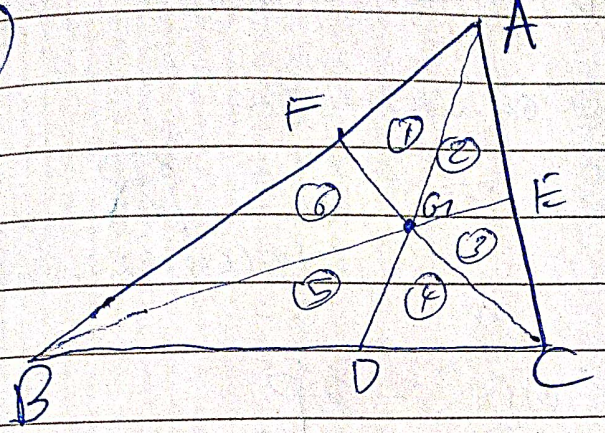
(5) Centroid divides median in 2:1 ratio up to down.



$AG = 2\Delta G$

Section formula applicable.

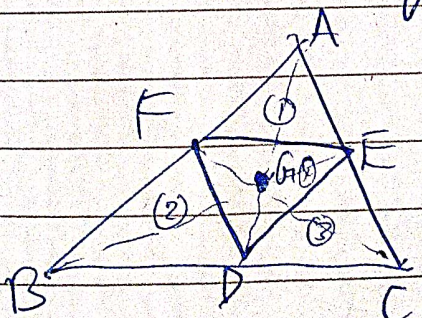
(6)



Property of Centroid ⇒ All 6 triangles have same area.

$\Delta_1 = \Delta_2 = \Delta_3 = \Delta_4 = \Delta_5 = \Delta_6 = \frac{\Delta ABC}{6}$

(7) Centroid of ΔDEF is also G.



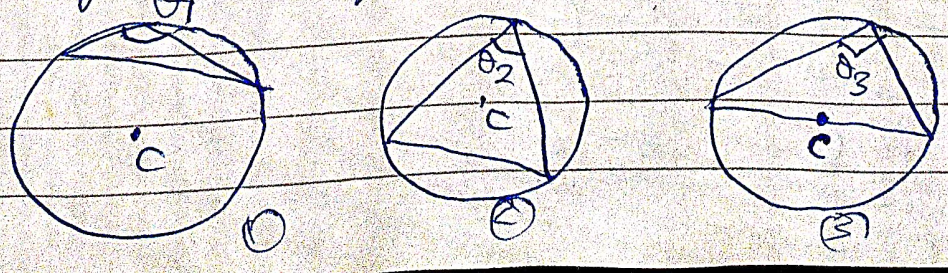
G is centroid of ΔDEF.

and

$\Delta AFE = \Delta BFD = \Delta DCE = DFDE$

All 4 triangles have same area $= \frac{\Delta ABC}{4}$

(8) Circumcentre lies outside if obtuse angle Δ & lies inside if acute angle Δ. And on the triangle if right triangle



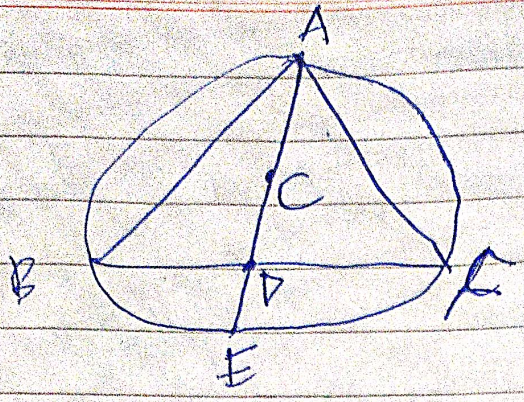
$\theta_1 > 90$

$\theta_2 < 90$

$\theta_3 = 90$

Property of Circumcentre.

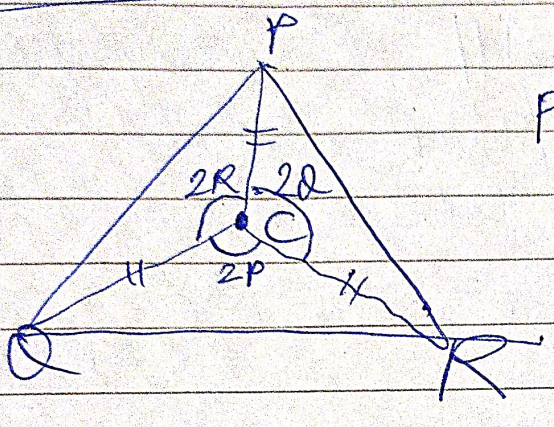
(9)



If AC is extended to the circumcircle.

$$(AD)(DE) = (BD)(DF)$$

(10)



Property of circumcentre

$PC = QC = RC = R$

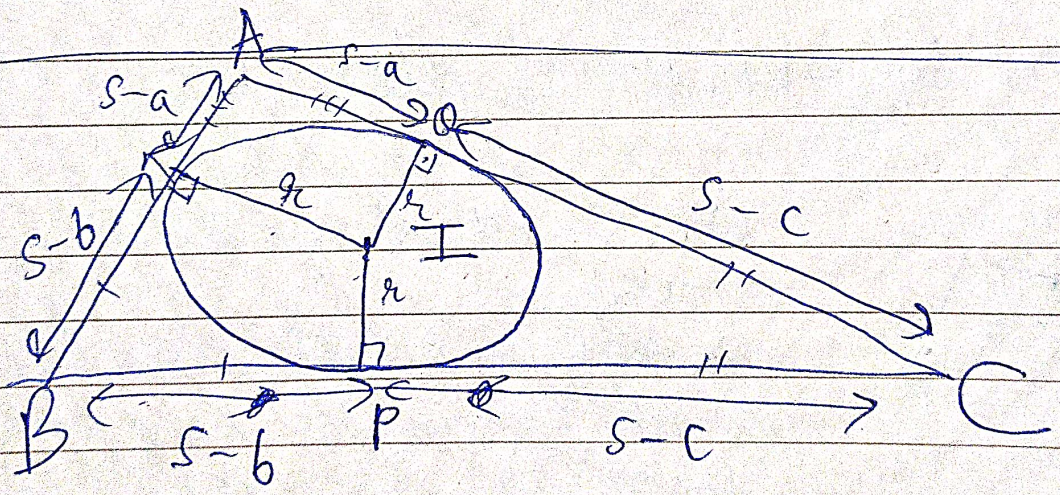
= circumradius

$\angle QCR = 2P$

$\angle PCR = 2Q$

$\angle PCQ = 2R$

(11)



Properties of Incentre.

(i) Perpendiculars from Incentre to sides are equal $IQ = IP = IR = r$

(ii)
$PB = RB = s-b$
$RA = QA = s-a$
$QC = PC = s-c$