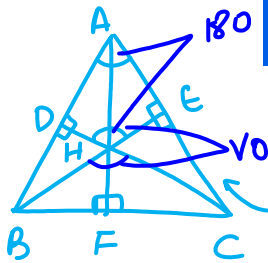
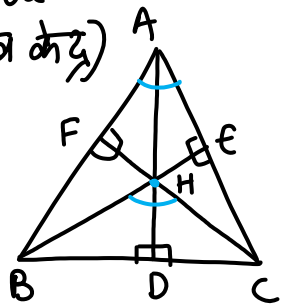
Altitude (लम्ब):



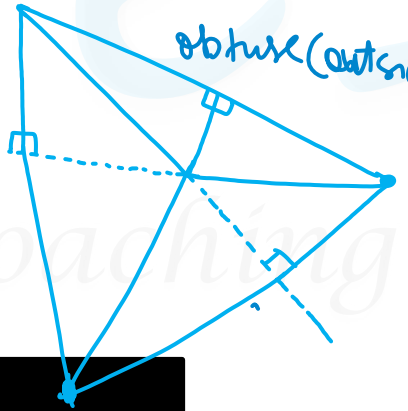
1. **Property:** It is ⊥ to opposite side
2. **Intersecting point:** Orthocenter (लम्ब केन्द्र)
3. **Angle property:** $\angle BHC + \angle BAC = 180$
4. **Location in different triangles:**
5. **Product formula:** $AH \times HD = BH \times HE = HC \times HF$

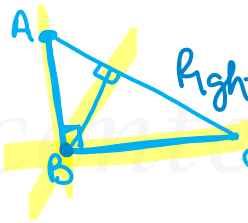


Orthodontist

Acute (Inside)

Obtuse (outside)





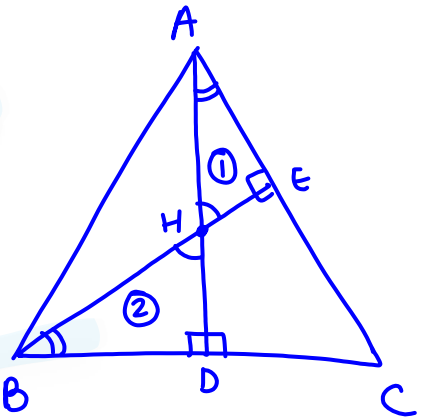
Right (on the Δ)

coaching center

①

$\frac{90^\circ}{\measuredangle} \rightarrow \frac{AH}{HE} = \frac{BH}{HD}$

$\Rightarrow AH \times HD = BH \times HE$



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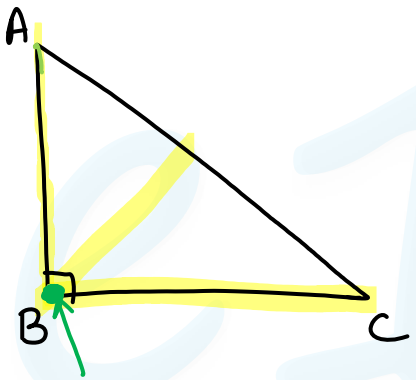
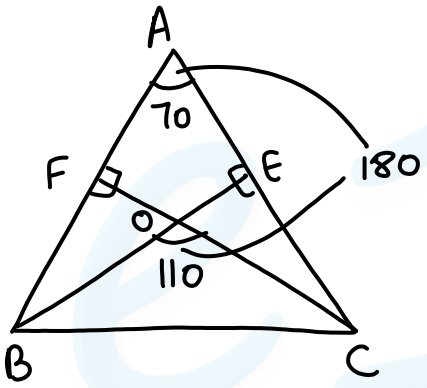


1. The orthocenter of a right-angled triangle lies
एक समकोण त्रिभुज का लम्बकेंद्र कहाँ स्थित होगा?

a) Outside the triangle
b) At the right angular vertex
c) On its hypotenuse
d) Within the triangle

coaching center



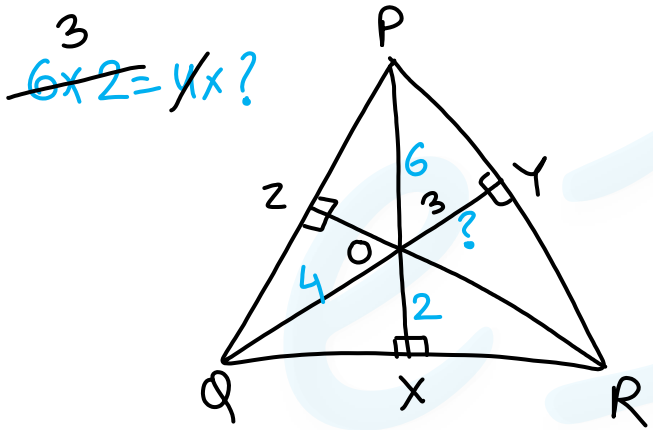
2. In ΔABC, draw BE $\perp$ AC and CF $\perp$ AB and the lines BE and CF intersect at point O. If $\angle BAC = 70°$, then the value of $\angle BOC$ is

ΔABC में BE $\perp$ AC और CF $\perp$ AB बनाईये और रेखाएं BE और CF बिंदु O पर प्रतिच्छेद करती हैं| अगर $\angle BAC = 70°$ है तो $\angle BOC$=?

a) 125 b) 55

c) 150 d) 110

coaching center



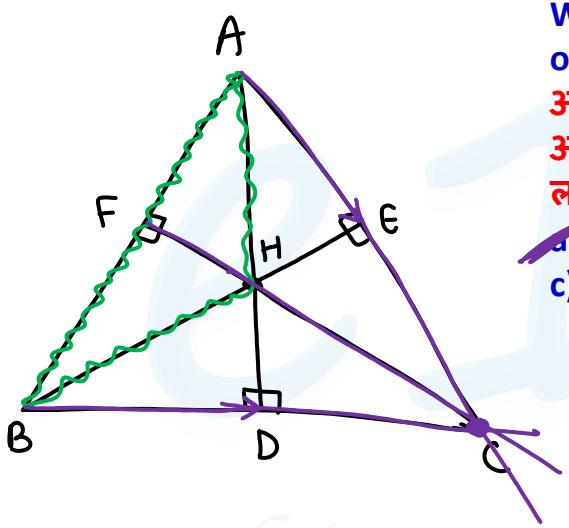
3. In a triangle PQR, PX, QY and RZ be altitudes intersecting at O. If $PO = 6cm, PX = 8cm$ and $QO = 4cm$, then what is the value of QY?

त्रिभुज PQR PX, QY तथा RZ, O प्रतिच्छेद करती हुई ऊंचाई है यदि $PO = 6cm, PX = 8cm$ तथा $QO = 4cm$ है, तो QY का मान क्या है?

a) 6.3 b) 5.8 c) 6 d) 7

coaching center

SSC CGL T2, 18 Feb 2018



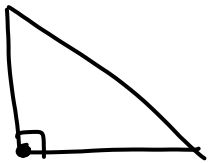
५. If AD, BE, CF are the altitudes of ΔABC Whose orthocenter is H, then C is the orthocenter of:

अगर AD, BE, CF ΔABC के लम्भ है और H लम्भ केंद्र तो C किस त्रिभुज का लम्भ केंद्र है?

a) ΔABH b) ΔABD

c) ΔBDH d) ΔBFA

coaching center



5. Which of the following statements are correct?

1) The orthocentre of a triangle always lies inside the triangle.
2) The centroid of a triangle always lies inside the triangle.
3) The orthocentre of a right-angled triangle lies on the triangle.
4) The centroid of a right-angled triangle lies on the triangle.

निम्नलिखित कौनसा/कौनसे कथन सत्य हैं?

1) किसी त्रिभुज का लम्बकेंद्र हमेशा त्रिभुज के अन्दर ही होता है|
2) किसी त्रिभुज का केन्द्रक हमेशा त्रिभुज के अन्दर ही होता है|
3) किसी समकोण त्रिभुज का लम्बकेंद्र त्रिभुज पर होता है|
4) किसी समकोण त्रिभुज का केन्द्रक त्रिभुज पर होता है|

a) 1 and 2 b) 1 and 4 c) 2 and 3 d) 2 and 4

coaching center

6. The sum of three altitudes of a triangle is:
किसी त्रिभुज के तीनों लम्बों की लम्बाई:

a) equal to the sum of three sides
b) twice the sum of sides
c) greater than the sum of sides
d) less than the sum of sides

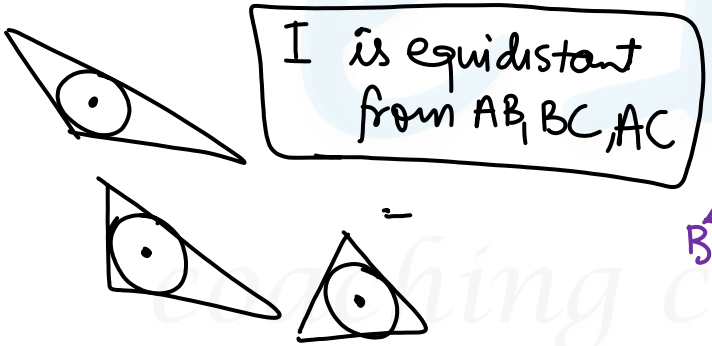
Sum of medians < Sum of sides

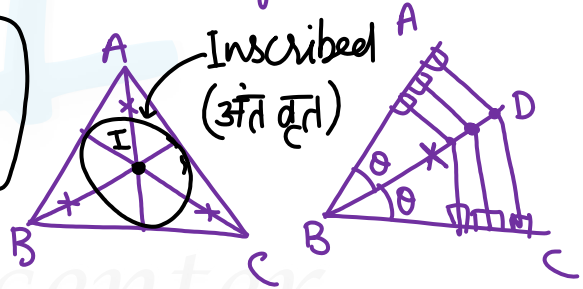
Sum of Altitudes < Sum of sides

coaching center

Angle bisector (कोण समद्विभाजक):

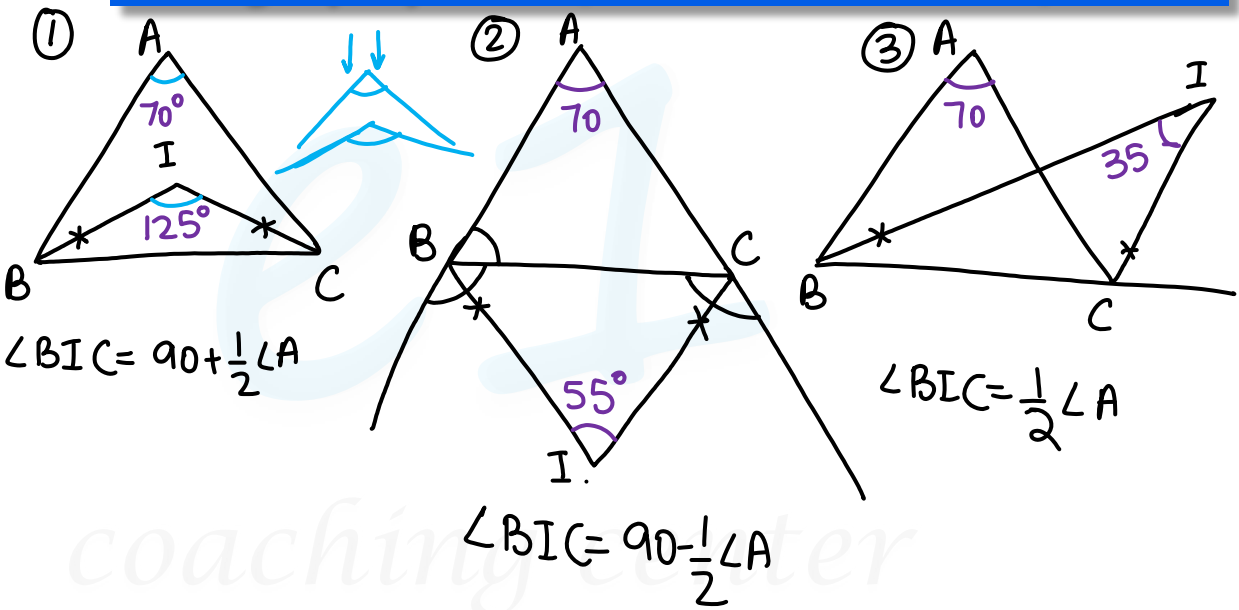
1. **Property:** bisects the angle at the vertex
2. **Intersecting point:** Incenter (अंत: केंद्र)
3. **Location in different triangles:** Always inside



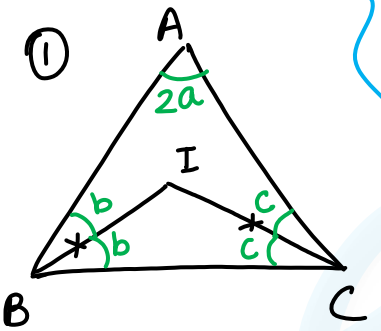


coaching center

3 Angle properties (कोण सम्बंधित 3 नियम):



coaching center



①

$\angle BIC = 180 - (b + c)$

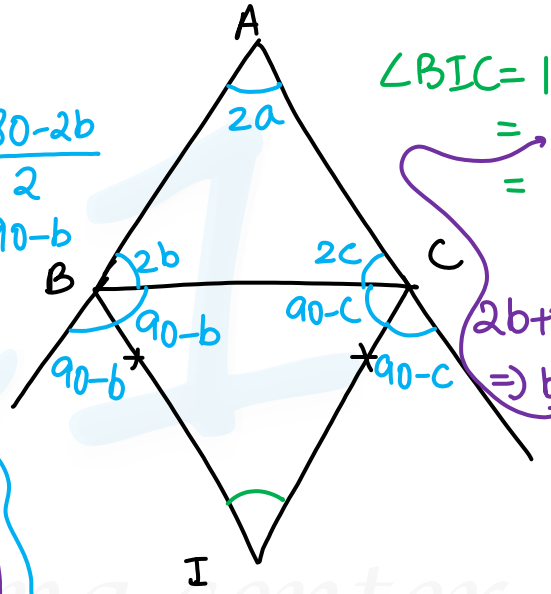
$= 180 - 90 + a$

$= 90 + a$

$2b + 2c = 180 - 2a$

$\Rightarrow b + c = 90 - a$

$\dfrac{180 - 2b}{2}$



$= 90 - b$

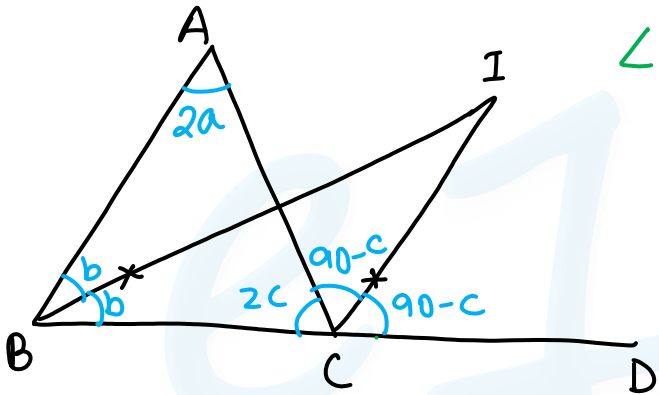
$\angle BIC = 180 - (180 - b - c)$

$= b + c$

$= 90 - a$

$2b + 2c = 180 - 2a$

$\Rightarrow b + c = 90 - a$



$2b+2c=180-2a$

$\Rightarrow b+c=90-a$

$\angle BIC = \angle ICD - \angle IBC$

$= 90-c-b$

$= 90-(b+c)$

$= 90-90+a$

$= a$

coaching center

1. Incentre of a triangle lies in the interior of:

a) An isosceles triangle only

b) A right angled triangle only

c) Any equilateral triangle only

d) Any triangle

किस त्रिभुज का अन्तःकेंद्र उसके अन्दर स्थित होता है:

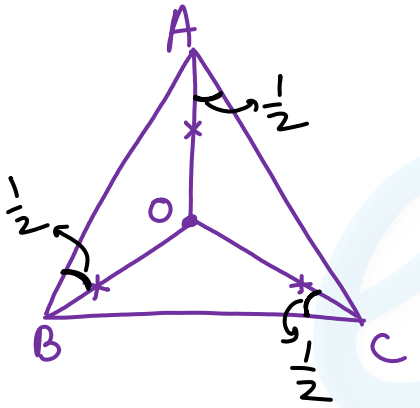
a) सिर्फ समदोभूजी त्रिभुज

b) सिर्फ समकोण त्रिभुज

c) सिर्फ सम त्रिभुज

d) कोई भी त्रिभुज

e1 coaching center



Incenter

2. The point O is equidistant from the three sides of a triangle ABC. Which of the below statements are correct?

1) $\angle OAC + \angle OCB + \angle OBA = 90°$

2) $\angle BOC = 2\angle BAC$

3) The perpendiculars drawn from any point on OA to AB and AC are always equal.

बिन्दु O एक त्रिभुज ABC की तीनों भुजाओं से समदूरस्थ है| निम्नलिखित में से कौनसा/से सही है/हैं?

1) $\angle OAC + \angle OCB + \angle OBA = 90°$

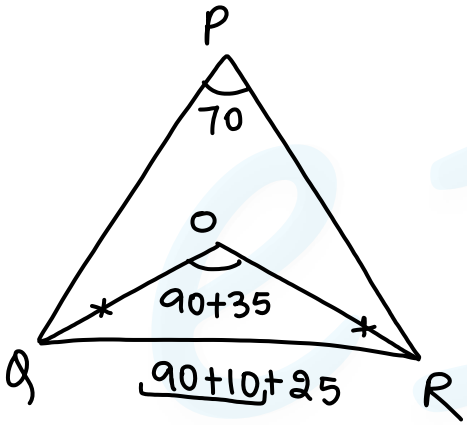
2) $\angle BOC = 2\angle BAC$

3) AB और AC पर OA के किसी बिन्दु से खींचे गए लंब सदैव समान हैं|

a) 1 and 2 only b) 2 and 3 only

c) 1 and 3 only d) 1,2 and 3

CDS 2015 II



3. In triangle PQR, the internal bisector of ∠Q and ∠R meets at O. if ∠QPR= 70°, then what is the value (in degree) of ∠QOR?

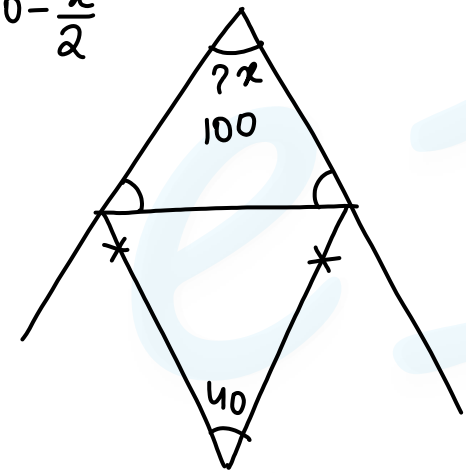
त्रिभुज PQR में, ∠Q तथा ∠R का आंतरिक द्रविभाजक O पर मिलते है| यदि ∠QOR = 70° है, तो ∠QOR का मान (डिग्री में) क्या है?

a) 45 ~~b) 125~~
c) 115 d) 110

coaching center

SSC CGL T2, 09 Mar 2018

$40 = 90 - \frac{x}{2}$



4. The angle between the external bisectors of two angles of a triangle is 40°. Then the third angle of triangle is

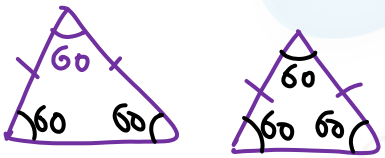
किसी त्रिभुज के दो कोणों के बाहरी सम्द्विभाजकों के मध्य का कोण 40 ° है| तीसरा कोण पता करें|

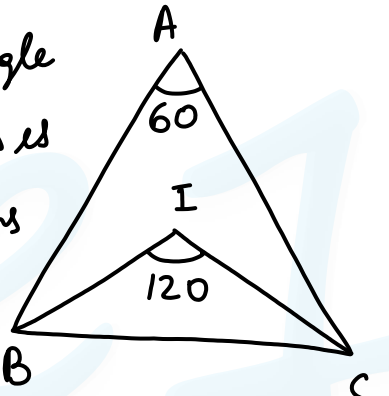
a) 100 b) 90

c) 70 d) 80

e-1 coaching center

* If any one angle in an isosceles △ is 60° then it means it is an equilateral △



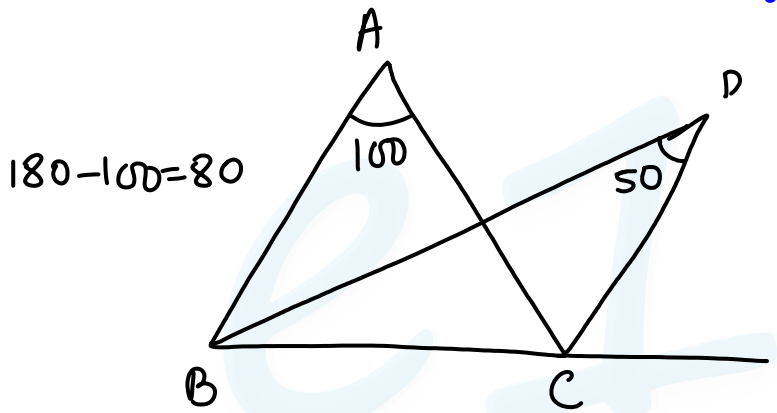


5. In an isosceles triangle ΔABC, the internal bisectors of $\angle ABC$ and $\angle ACB$ meet at I and $\angle BIC = 120°$. The measure of $\frac{AB}{AC}$ is

किसी समद्विबाहु ΔABC में कोणों $\angle ABC$ और $\angle ACB$ के अंदरूनी समद्विभाजक बिंदु I पर मिलते हैं और $\angle BIC = 120°$ है| तो $\frac{AB}{AC} = ?$

a) 2 b) 1
c) 1.5 d) CND

coaching centre



6. In ΔABC the bisectors of the internal $\angle B$ and external $\angle C$ intersect at D. If $\angle BDC = 50°$. Then supplement of $\angle A$ is =

ΔABC में कोण $\angle B$ का अंदरूनी समद्विभाजक व कोण $\angle C$ का बाहरी समद्विभाजक बिंदु D पर मिलते हैं| अगर $\angle BDC = 50°$ है तो $\angle A$ का समपूरक क्या होगा?

a) 25 b) 155

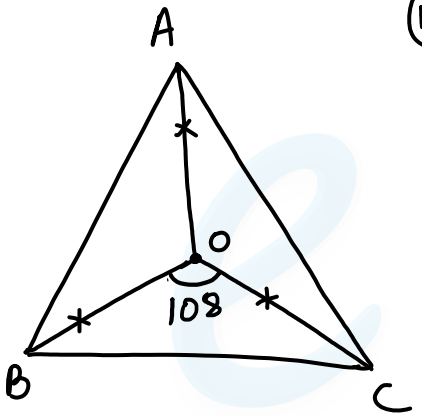
c) 80 d) 100

coaching center

7. (HW) In ΔABC, O is the point of intersection of the bisector of $\angle B$ and $\angle A$. If $\angle BOC = 108°$, then $\angle BAO$ =?

ΔABC में, $\angle B$ और $\angle A$ के समद्विभाजकों का प्रतिच्छेदन बिंदु O है। यदि $\angle BOC = 108°$ है, तो $\angle BAO$ का माप क्या होगा?

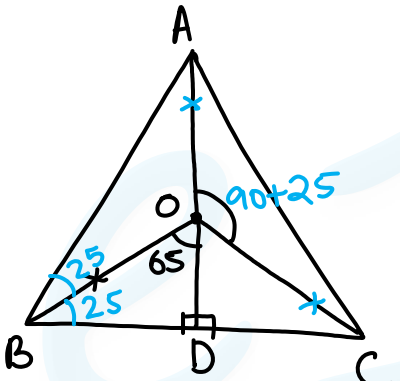
a) $27°$ b) $18°$ c) $36°$ d) $40°$



– AO, BO & CO are angle bisectors because O is incentel.

$\angle BOC = 90 + \frac{1}{2}\angle A$

$\therefore \angle A = 36° \rightarrow \therefore \angle BAO = 18°$ [As AO is $\angle$ bisector]



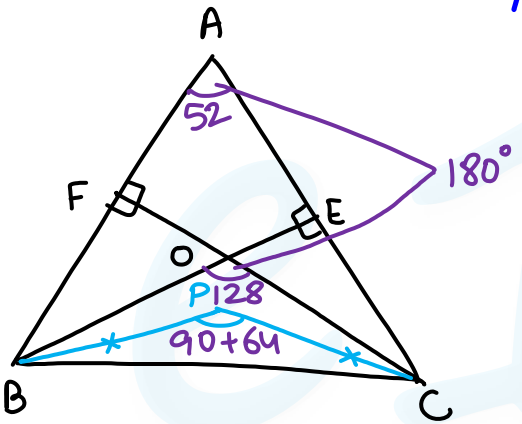
8. Let O be the incentre of ΔABC and D be the point on the side BC, such that OD $\perp$ BC. If $\angle BOD = 65°$, then $\angle COA =$

O किसी त्रिभुज ΔABC का अंतःकेंद्र है और D, भुजा BC पर एक बिंदु इस प्रकार है की OD $\perp$ BC हो| अगर $\angle BOD = 65°$ हो तो $\angle COA =$

a) 50 b) 130

c) 115 d) 90

coaching center



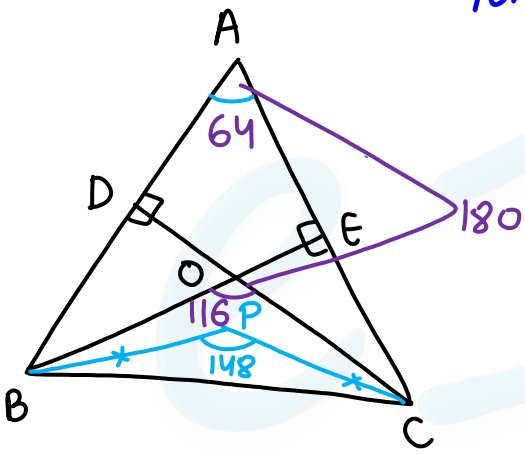
9. In ΔABC, $\angle A = 52°$ and O is the orthocenter of the triangle. BO and CO meet AC and AB at E and F respectively when produced. If the bisectors of $\angle OBC$ and $\angle OCB$ meet at P, then the measure of $\angle BPC$ is:

ΔABC में, $\angle A = 52°$ और O एक त्रिभुज का लम्ब केंद्र है. BO और CO क्रमश: E और F पर AC एंव AB से मिलते है जब उन्हें बढाया जाता है| यदि $\angle OBC$ और $\angle OCB$ के द्रविभाजक P पर मिलते हा, तो $\angle BPC$ है:

a) 124° b) 132°
c) 138° d) 154°

coaching center

SSC CGL T2, 11 Sep 2019



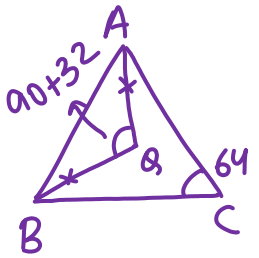
10. In ΔABC, $BE \perp AC, CD \perp AB$ and BE and CD intersect each other at O. The bisectors of ∠OBC and ∠OCB meet at P. If $\angle BPC = 148°$, then what is the measure of ∠A?

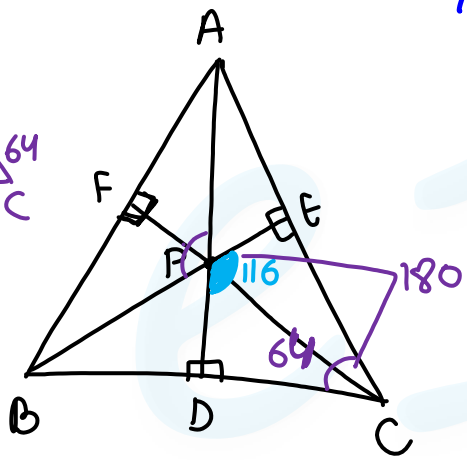
ΔABC में $BE \perp AC, CD \perp AB$ तथा BE और CD परस्पर एक-दुसरे को O पर काटते है| ∠OBC और ∠OCB के सम-द्विभाजक P पर मिलते है| यदि $\angle BPC = 148°$ है, तो ∠A की माप क्या होगी?

a) 56° b) 28° c) 32° d) 64°

coaching center

SSC CGL T2, 13Sep 2019





11. In ΔABC, the perpendiculars drawn from A, B and C meet the opposite sides at D, E and F, respectively. AD, BE and CF intersect at point P. If $\angle EPD = 116°$ and the bisectors of $\angle A$ and $\angle B$ meet at Q, then the measure of $\angle AQB$ is:

ΔABC में, A, B और C से लंब क्रमशः D, E और F पर इस प्रकार बनायीं जाती हैं कि AD, BE और CF एक दूसरे को बिंदु P पर काटती हैं। यदि $\angle EPD = 116°$ और $\angle A$ और $\angle B$ के सम्द्विभाजक Q पर मिलते हैं, तो $\angle AQB$ की माप क्या है?

a) $96°$
b) $122°$
c) $124°$
d) $64°$

coaching center

SSC CGL T2, 12 Sep 2019