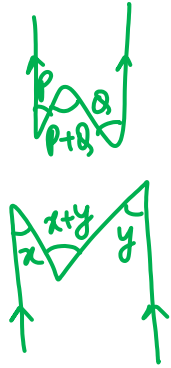
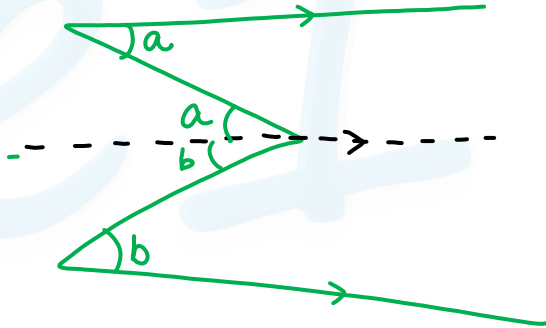
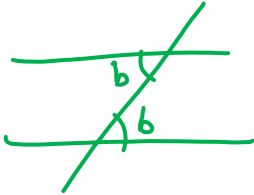
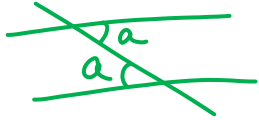
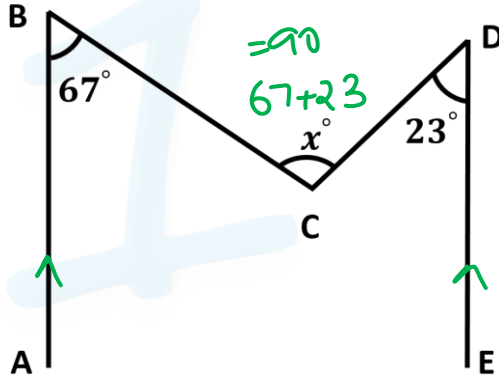
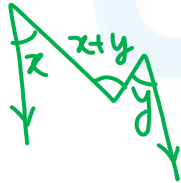


M shape Σ, Ξ, W, M



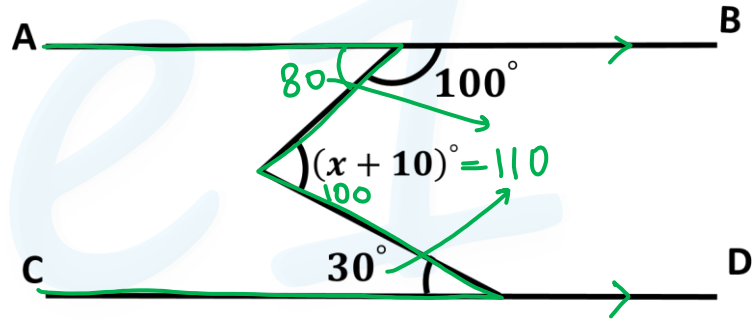
coaching center

15. Find x . Given $AB \parallel DE$



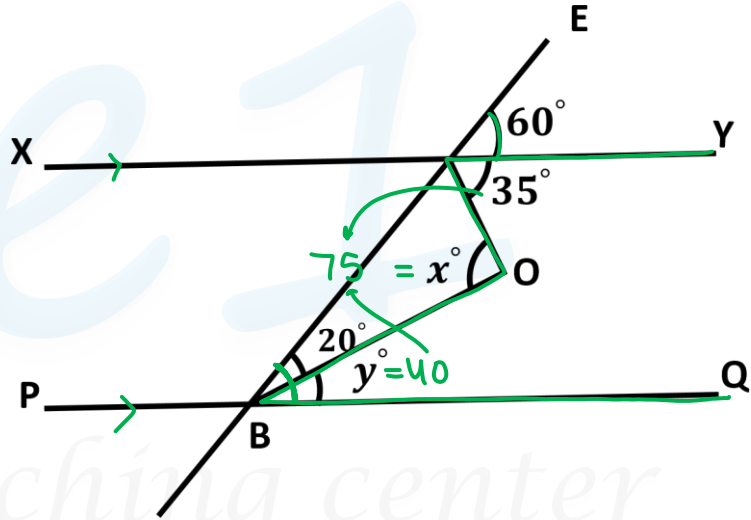
coaching center

16. $AB \parallel CD$, Find x .



coaching center

17. $XY \parallel PQ$, find $x + y$.



coaching center

18. In the figure above, AB is parallel to LM . What is the angle a equal to:
दी गई आकृति में AB, LM के समांतर हैं। कोण a किसके सामान है?

a) $\pi + b + c$

b) $2\pi - b + c$

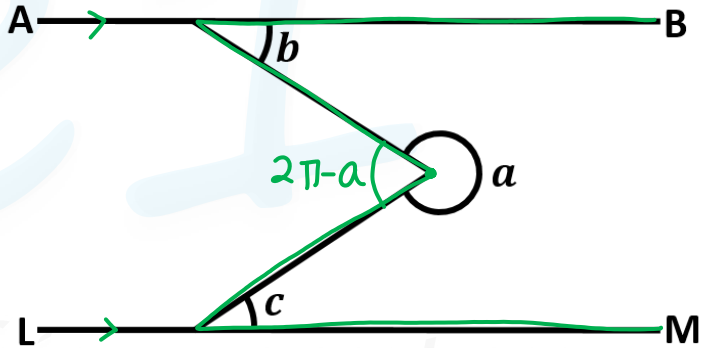
c) $2\pi - b - c$

d) $2\pi + b - c$

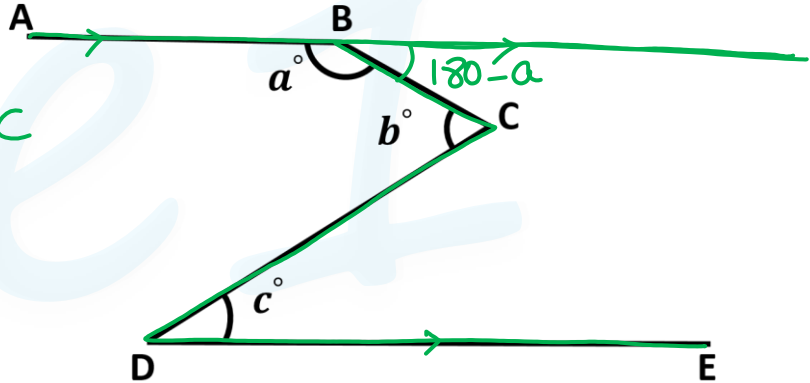
$360^\circ = 2\pi^c$
 $180^\circ = \pi \text{ rad}$
 $90^\circ = \frac{\pi^c}{2}$

$2\pi - a = b + c$

$\Rightarrow 2\pi - b - c = a$



19. $AB \parallel DE$. Find $a + b - c$.

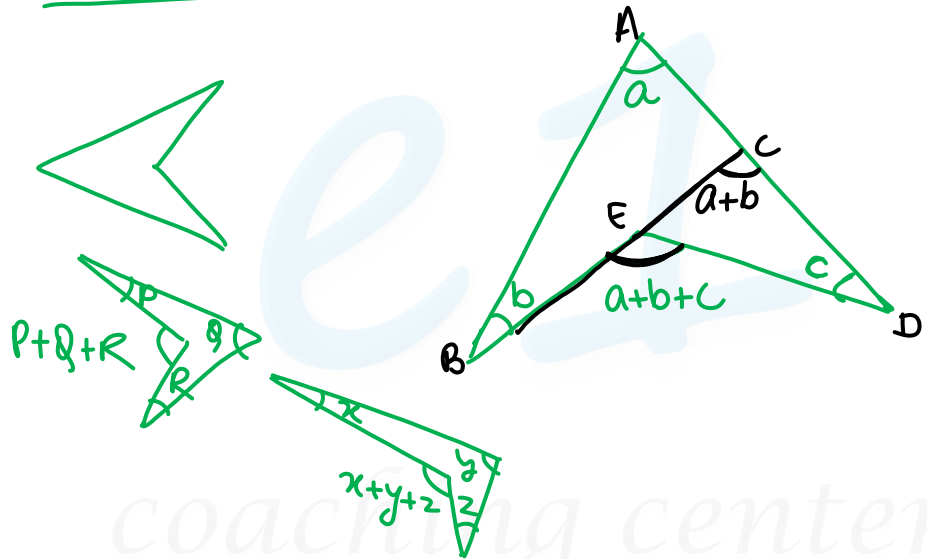


$$b = 180 - a + c$$

$$a + b - c = 180^\circ$$

coaching center

Arrow!



coaching center

20. In the adjoining figure $\angle BAD = a$, $\angle ABC = b$ and $\angle BCD = c$ and $\angle ADC = d$, find the value of $\angle ABC$ in terms of a, c and d :

दी गई आकृति में $\angle BAD = a$, $\angle ABC = b$ और $\angle BCD = c$ और $\angle ADC = d$ है a, c और d के रूप में $\angle ABC$ का मान बताए।

a) $c - (a + d)$

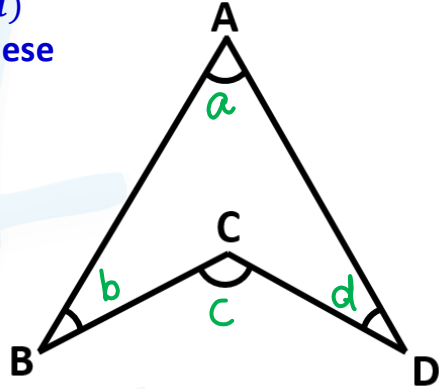
b) $a - (c + d)$

c) $a - (c + d)$

d) None of these

$$C = a + b + d$$

$$C - a - d = b$$



coaching center

21. If in the given figure, $\angle ACB + \angle BAC = 80^\circ$, $\angle BDE = 35^\circ$, $\angle BCE = 45^\circ$, then the marked angle $\angle CED$ is:

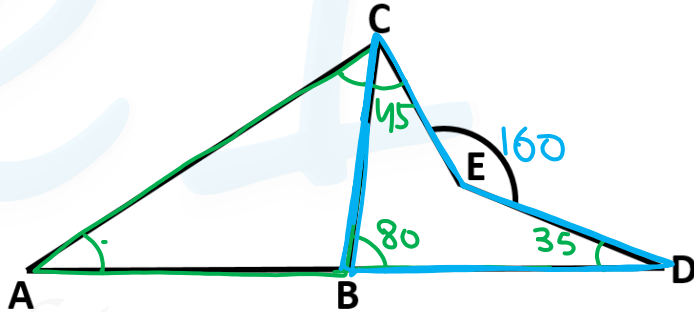
यदि दी गई आकृति में $\angle ACB + \angle BAC = 80^\circ$, $\angle BDE = 35^\circ$, $\angle BCE = 45^\circ$ तो चिह्नित कोण $\angle CED$ है:

a) 150°

b) 120°

~~c) 160°~~

d) 135°



22. The angles x° , a° , c° and $(\pi - b)^\circ$ are indicated in the figure given below. Which one of the following is correct?

कोण x° , a° , c° और $(\pi - b)^\circ$ नीचे दी गई आकृति अनुसार हैं। निम्न में से कौनसा सही है?

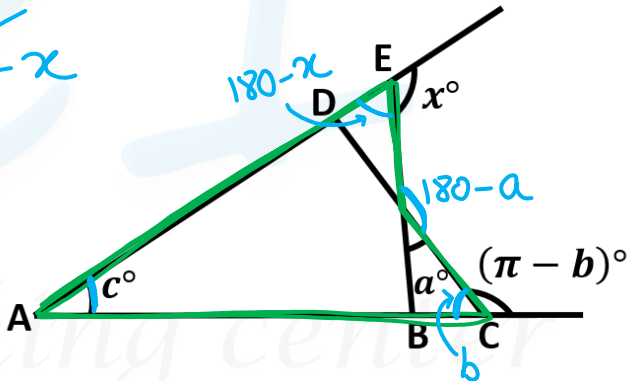
a) $x^\circ = a^\circ + c^\circ - b^\circ$

c) $x^\circ = a^\circ + b^\circ + c^\circ$

b) $x^\circ = b^\circ - a^\circ - c^\circ$

d) $x^\circ = a^\circ - b^\circ + c^\circ$

~~$180 - a = b + c + 180 - x$~~
 ~~$x = a + b + c$~~



23. How many degrees are there in an angle which equals one-fifth of its supplement?

जो कोण अपने संपूरक कोण के पांचवे हिस्से के बराबर है वो कितने डिग्री का है?

a) 15°

~~b) 30°~~

c) 75°

d) 150°

90° Comp पूरक

180° Simple संपूरक

$$\theta + 5\theta = 180$$

$$a + b = 180$$

$$\theta = \frac{180}{6} = 30$$

coaching center

24. An angle is 30° more than one half of its complement. Find the angle in degrees:

एक कोण अपने पूरक कोण के आधे 30° से ज्यादा है। वह कोण बताओ।

a) 60°

~~b) 50°~~

c) 45°

d) 80°

$$\theta + 30 + 2\theta = 90$$

$$\cancel{3}\theta = \cancel{60} - 20$$

coaching center

25. If two angles are complementary of each other, then each angle is:

- a) A right angle 90° b) A supplementary angle
c) An obtuse angle ~~d) An acute angle~~

अगर दो कोण एक दुसरे के पूरक कोण हैं तो प्रत्येक कोण निम्न में से क्या है?

- a) सम कोण b) संपूरक कोण
c) अधिक कोण ~~d) न्यून कोण~~

- ① 0, 90
② { Acute, Acute
1°, 89°
.5°, 89.5°

coaching center

26. $\angle AOE = \angle BOD$, Find x .

(Hw)

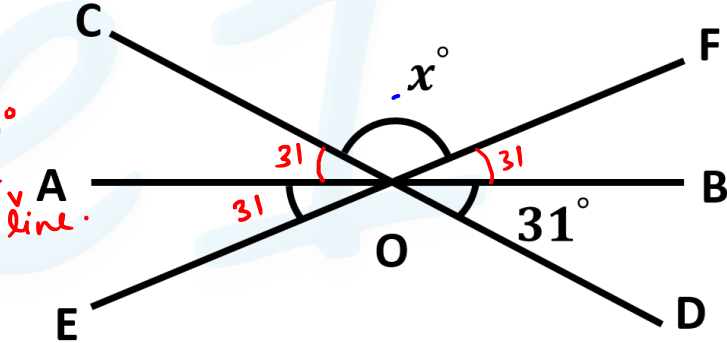
$\angle AOC = \angle BOD$ [Vertically opposite / शीर्षाभिमुख्य]]

$\angle FOB = \angle AOE$ [↙]

$\angle BOF + \angle FOC + \angle COA = 180^\circ$

\therefore Angles on a straight line.

$$\begin{aligned} \Rightarrow \angle COF &= 180 - 62 \\ &= 118 \end{aligned}$$



coaching center

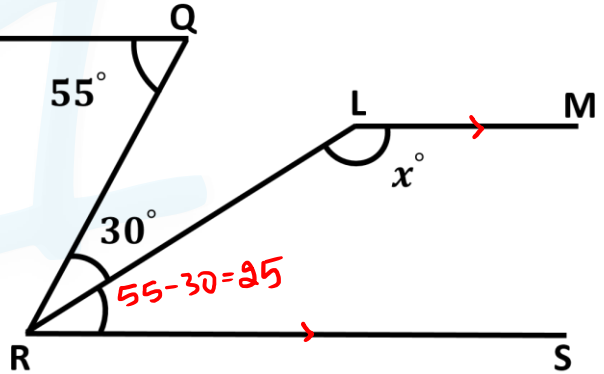
27. $PQ \parallel LM \parallel RS$. Find x .

(HW)

$$\angle PQR = \angle QRS = 55^\circ \quad (\text{Z})$$

$$\angle MLR + \angle LRS = 180^\circ \quad \left[\begin{array}{l} \text{Angles on the} \\ \text{same side} \\ \text{of transversal.} \end{array} \right]$$

$$\Rightarrow x = 180 - 25 \\ = 155$$



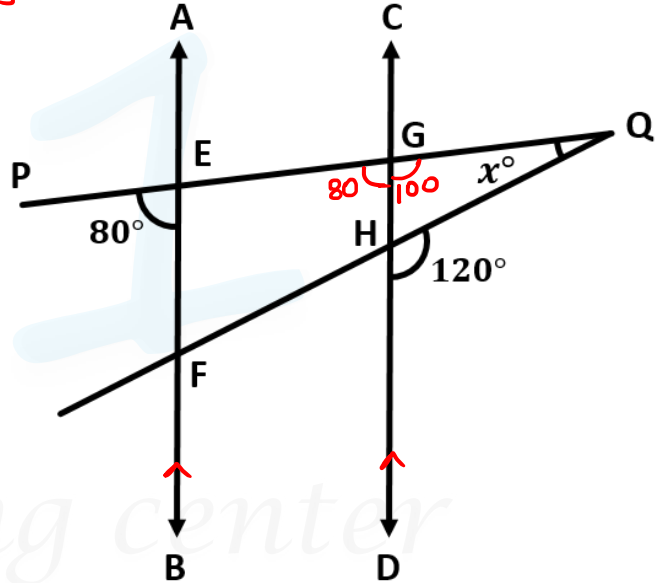
coaching center

$\angle HGE = \angle FEP$ [Corresponding / संगत]

$100 + x = 120$ [Ext. angle]

$\Rightarrow x = 20$

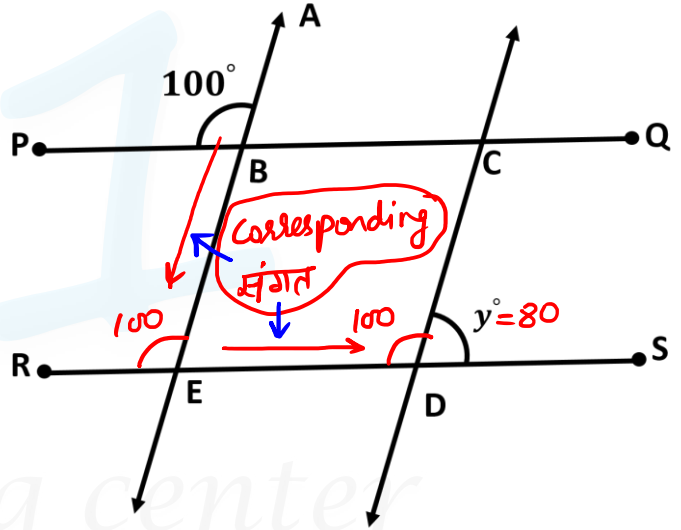
28. $AB \parallel CD$, find x .



coaching center

29. $AE \parallel CD$ and $BC \parallel ED$, then find y .

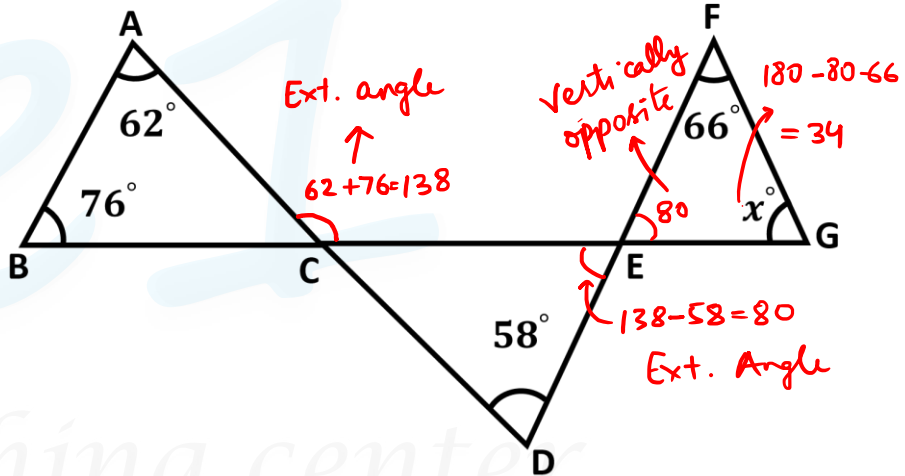
(Hw)



coaching center

30. Find x .

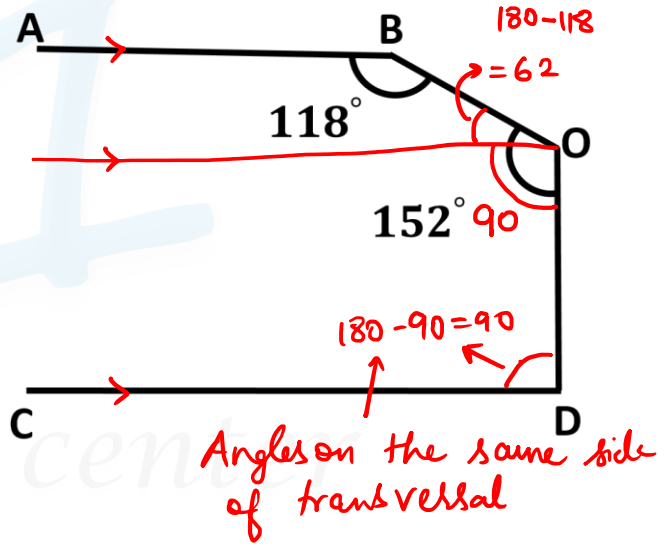
Hw



coaching center

31. $AB \parallel CD$, find $\angle CDO$.

(Hw)



Triangle basic concepts

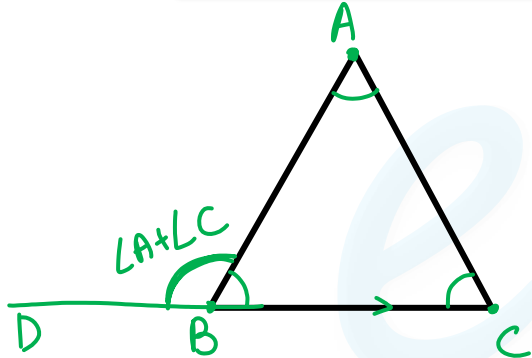
(त्रिभुज मूल अवधारणायें)

① L & A

② Δ 's

coaching center

Introduction (परिचय):



$\angle A, \angle B, \angle C$

- 3 Vertices (शीर्ष) $\rightarrow A, B, C$
- 3 Angles (कोण)
- 3 Sides (भुजा)

$\overline{AB}, \overline{BC}, \overline{CA}$

$\angle A + \angle B + \angle C = 180^\circ$

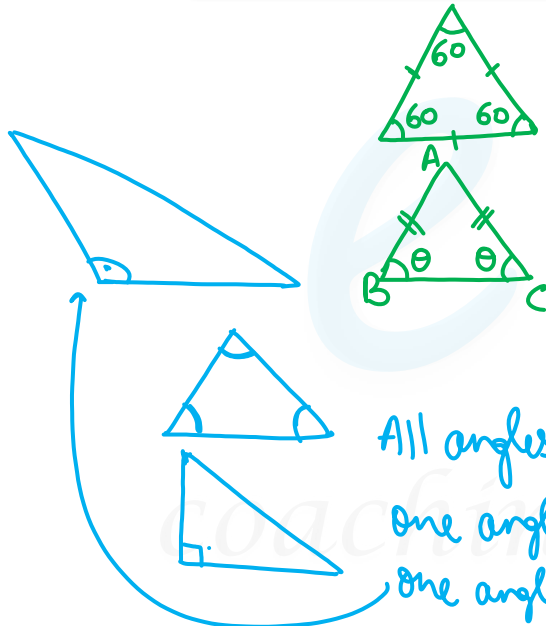
Angle sum property

$\angle B + \angle A + \angle C = 180^\circ$

$\angle B + \angle ABD = 180^\circ$

Exterior angle property

Types of triangles (त्रिभुजों के प्रकार):



On the basis of sides:

भुजाओं

a) Equilateral (समबाहु)

b) Isosceles (समद्विबाहु)

c) Scalene (विषमबाहु)

On the basis of angles:

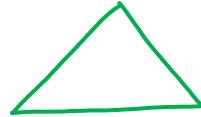
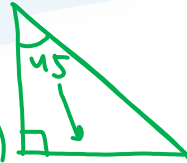
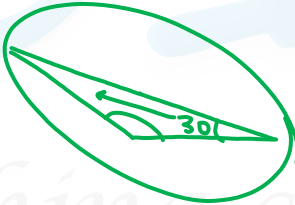
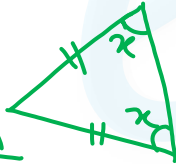
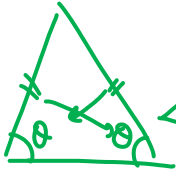
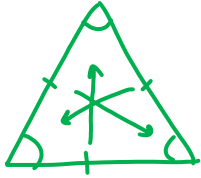
कोणों

All angles $< 90^\circ$ ← a) Acute angled (न्यून कोण)

One angle $= 90^\circ$ ← b) Right angled (सम कोण)

One angle $> 90^\circ$ ← c) Obtuse angled (अधिक कोण)

Side-angle relation (भुजा-कोण संबंध):



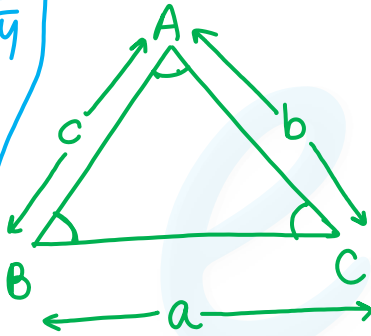
1. Angles opposite to equal sides are equal and vice versa is true.
2. Angles opposite to larger sides are larger and vice versa is true.

coaching center

Sine rule and special RATs:

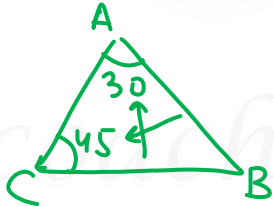
$$\frac{x}{2} = \frac{y}{3} = \frac{z}{4}$$

$\Rightarrow x:y:z$
 $= 2:3:4$



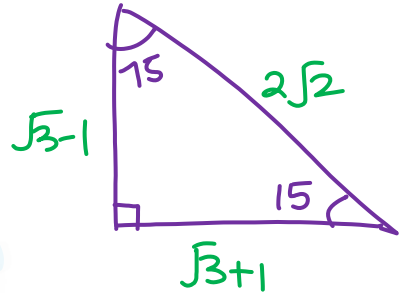
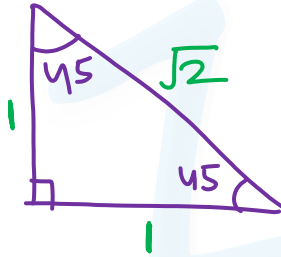
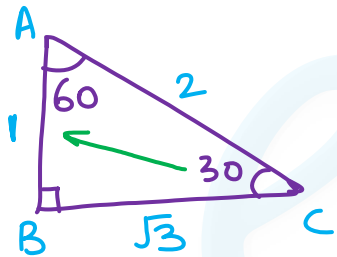
$$a:b:c = \sin A : \sin B : \sin C$$

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$



$$\frac{BC}{AB} = \frac{\sin 30}{\sin 45}$$

Special RATs:

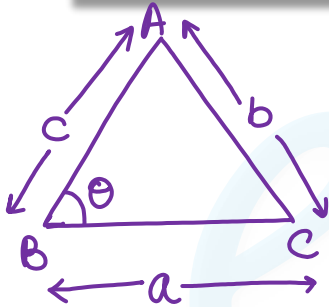


AB BC CA = $\sin 30^\circ$: $\sin 60^\circ$: $\sin 90^\circ$

$$= \frac{1}{2} : \frac{\sqrt{3}}{2} : 1$$
$$= 1 : \sqrt{3} : 2$$

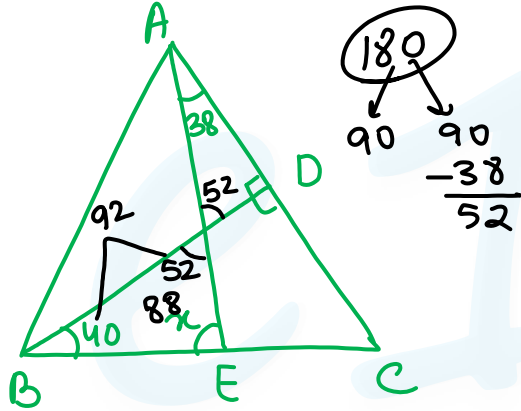
coaching center

Cosine rule:



$$b^2 = a^2 + c^2 - 2ac \cos \theta$$

coaching center



10. In $\triangle ABC$, $BD \perp AC$, E is a point on BC such that $\angle BEA = x^\circ$. If $\angle EAC = 38^\circ$ and $\angle EBD = 40^\circ$, then the value of x is :

$\triangle ABC$ में, $BD \perp AC$, E , BC पर एक बिंदु है जिससे $\angle BEA = x^\circ$ है। यदि $\angle EAC = 38^\circ$ और $\angle EBD = 40^\circ$, तो x का मान ज्ञात करें:

- ~~a) 88°~~ b) 68°
 c) 78° d) 72°

coaching center

2. In $\triangle ABC$, $AB = AC$ and $\angle B = 30^\circ$. Find $\angle A$.

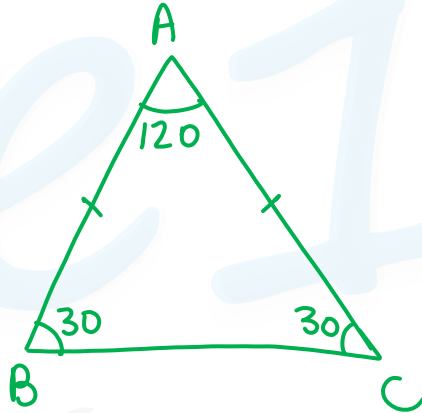
त्रिभुज ABC में $AB = AC$ और $\angle B = 30^\circ$ है तो $\angle A$ पता करें।

a) 120

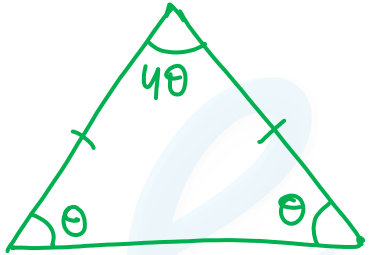
b) 60

c) 150

d) 30



coaching center



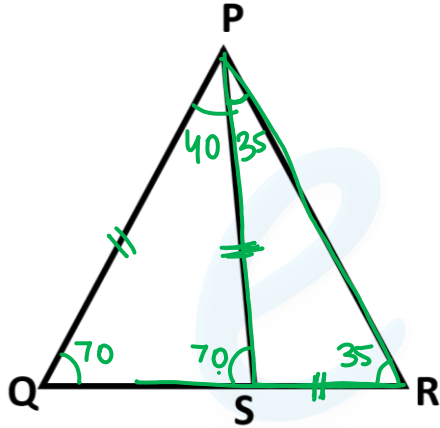
$$\cancel{6\theta} = 180 \rightarrow 30$$

3. In an isosceles triangle, if the unequal angle is twice the sum of equal angles, then each equal angle is

किसी समद्विबाहु त्रिभुज में अगर असमान कोण बाकी दोनों समान कोणों के योग के दोगुने के बराबर है तो प्रत्येक समान कोण कितना होगा?

- a) 120 b) 60
~~c) 30~~ d) 45

coaching center

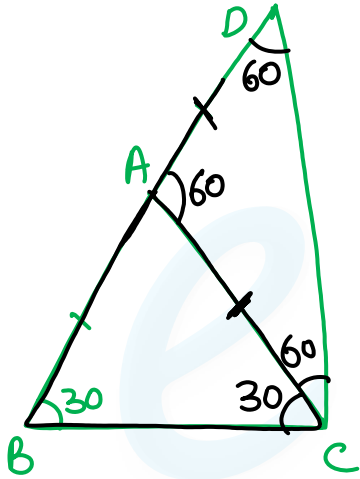


4. In the given figure, $PQ = PS = SR$ and $\angle QPS = 40^\circ$, then what is the value of $\angle QPR$ (in degrees)?

दी गई आकृति में $PQ = PS = SR$ तथा $\angle QPS = 40^\circ$ हो, तो $\angle QPR$ का मान क्या है?

- a) 45 b) 60
~~c) 75~~ d) 50

coaching center



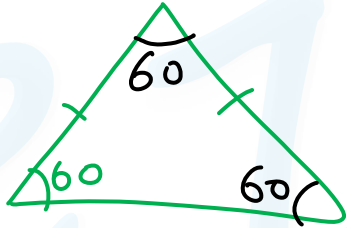
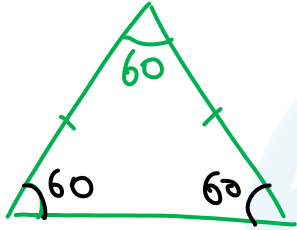
5. ABC is an isosceles triangle with $AB = AC$. The side BA is produced to D such that $AB = AD$. If $\angle ABC = 30^\circ$, then $\angle BCD = ?$

ABC एक समद्विबाहु त्रिभुज है जिसमें $AB = AC$ है। भुजा BA को बिंदु D तक इस प्रकार बढ़ाया जाता है कि $AB = AD$ हो। अगर $\angle ABC = 30^\circ$ है तो $\angle BCD = ?$

- a) 30 b) 60
~~c) 90~~ d) 120

coaching center

An isosceles \triangle if ^{any} one angle = 60° then it is an equilateral



coaching center