RS Aggarwal Solutions Class 9 Maths Chapter 9: Congruent triangles are those with corresponding sides and angles that are equal. Understanding congruence helps solve geometry problems and prove theorems.

This chapter also covers triangle inequalities, which are rules about the relationships between the sides and angles of triangles. By studying this chapter, students can improve their understanding of geometry concepts and become better at solving math problems.

RS Aggarwal Solutions Class 9 Maths Chapter 9 - Congruence of Triangles and Inequalities in a Triangle PDF

You can access the PDF for RS Aggarwal Solutions Class 9 Maths Chapter 9 - "Congruence of Triangles and Inequalities in a Triangle" by following the link provided below:

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RS Aggarwal Solutions Class 9 Maths Chapter 9 - Congruence of Triangles and Inequalities in a Triangle

The solutions for RS Aggarwal Class 9 Maths Chapter 9 - "Congruence of Triangles and Inequalities in a Triangle" are provided below. These solutions provide step-by-step explanations for each exercise, aiding students in understanding the concepts thoroughly.

By referring to these solutions, students can enhance their problem-solving skills and prepare effectively for their exams. Whether it's proving congruence between triangles or solving problems related to inequalities in triangles, these solutions provide comprehensive assistance to students, ensuring clarity of concepts and boosting their confidence in mathematics.

RS Aggarwal Solutions Class 9 Chapter 9 - Congruence Of Triangles Inequalities In Triangle Exercise 9

Question 1.

Solution:

In $\triangle ABC$,
$\angle B = 76°$ and $\angle C = 48°$
But $\angle A + \angle B + \angle C = 180°$
(Sum of angles of a triangle)
=> $\angle A + 76° + 48° = 180°$

=> $\angle$ A + 124° = 180°
=> $\angle$A= 180° – 124° = 56°

Question 2.

Solution:

Angles of a triangle are in the ratio = 2:3:4
Let first angle = 2x
then second angle = 3x
and third angle = 4x
2x + 3x + 4x = 180°
(Sum of angles of a triangle)
= 9x = 180°
= x = 180/9= 20°
First angle = 2x = 2 x 20° = 40°
Second angle = 3x = 3 x 20° = 60°
and third angle = 4x = 4 x 20° = 80° Ans.

Question 3.

Solution:

In ΔABC,
3$\angle$A = 4$\angle$B = 6$\angle$C = x (Suppose)

$\therefore \quad \angle A = \frac{1}{3}x, \angle B = \frac{1}{4}x$ and $\angle C = \frac{1}{6}x$

But $\angle A + \angle B + \angle C = 180°$

(Sum of angles of a triangle)

$\Rightarrow \frac{1}{3}x + \frac{1}{4}x + \frac{1}{6}x = 180°$

$\Rightarrow \frac{4x + 3x + 2x}{12} = 180°$

$\Rightarrow \frac{9x}{12} = 180°$

$\Rightarrow x = \frac{180° \times 12}{9} = 240°$

$\Rightarrow \angle A = \frac{1}{3}x = \frac{1}{3} \times 240° = 80°$

$\angle B = \frac{1}{4}x = \frac{1}{4} \times 240° = 60°$

and $\angle C = \frac{1}{6}x = \frac{1}{6} \times 240° = 40°$ Ans.

Question 4.

Solution:

In ΔABC,
∠A + ∠B = 108° ...(i)
∠B + ∠C = 130° ...(ii)
But ∠A + ∠B + ∠C = 180° ...(iii)

(sum of angles of a triangle)
Subtracting (i) from (iii),
∠C = 180° – 108° = 72°
Subtracting (ii) from (iii),
∠A = 180°- 130° = 50°
But ∠ A + ∠B = 108° (from i)
50° + ∠B = 108°
=> ∠B = 108° – 50° = 58°
Hence ∠A = 50°, ∠B = 58° and ∠C = 72° Ans.

Question 5.

Solution:

In ΔABC,
∠A+∠B = 125° ...(i)
∠A + ∠C = 113° ...(ii)
But ∠A + ∠B + ∠C = 180° ...(iii)
(sum of angles of a triangles) Subtracting, (i), from (iii),
∠C = 180°- 125° = 55°
Subtracting (ii) from (iii),
∠B = 180°- 113° – 67°
∠A + ∠B = 125°

$\angle A + 67° = 125°$
=> $\angle A = 125° - 67°$
$\angle A = 58°$
Hence $\angle A = 58°$, $\angle B = 67°$ and $\angle C = 55°$ Ans.

Question 6.

Solution:

In Δ PQR,
$\angle P - \angle Q = 42°$

= $\angle P = 42° + \angle Q$ ...(i)
$\angle Q - \angle R = 21°$
$\angle Q - 21° = \angle R$ ...(ii)
But $\angle P + \angle Q + \angle R = 180°$
(Sum of angles of a triangles)
$42° + \angle Q + \angle Q + \angle Q - 21° = 180°$
= $21° + 3\angle Q = 180°$
= $3\angle Q = 180° - 21° = 159°$
from $\angle Q = 53°$
(i)$\angle P = 42° + \angle Q = 42° + 53° = 95°$
and from (ii) $\angle R = \angle Q - 21°$
= $53° - 25° = 32°$
Hence $\angle P = 95°$, $\angle Q = 53°$ and $\angle R = 32°$ Ans.

Question 7.

Solution:
Let $\angle A$, $\angle B$ and $\angle C$ are the three angles of A ABC.
and $\angle A + \angle B = 116°$ ...(i)
$\angle A - \angle B = 24°$ ...(ii)
Adding we get :
$2\angle A = 140°$

$\Rightarrow \angle A = \frac{140°}{2} = 70°$

Subtracting, we get
$2\angle B = 92°$

$\Rightarrow \angle B = \frac{92°}{2} = 46°$

But $\angle A + \angle B + \angle C = 180°$
(sum of angles of a triangle)
$\Rightarrow 70° + 46° + \angle C = 180°$
$\Rightarrow 116° + \angle C = 180°$
$\Rightarrow \angle C = 180° - 116° = 64°$
Hence angles of the triangle are,
70°, 46° and 64° Ans.

Question 8.

Solution:

Let ∠ A, ∠ B and ∠ C are the three angles of the Δ ABC
Let ∠ A = ∠ B = x
then ∠C = x + 48°
But ∠A + ∠B + ∠C = 180°
(Sum of angles of a triangle)
x + x + x + 18° = 180°
= 3x + 18° = 180°
= 3x = 180° – 18° = 162°
x = 54°
∠A = 54°, ∠B = 54° and ∠C = 54° + 18° = 72°
Hence angles are 54°, 54 and 72° Ans.

Question 9.

Solution:

Let the smallest angle of a triangle = x°
their second angle = 2x°
and third angle = 3x°
But sum of angle of a triangle = 180°
x + 2x + 3x = 180°
= 6x = 180°
= x = 30°
Hence smallest angle = 30°
Second angle = 2 x 30° = 60°
and third angle = 3 x 30° = 90° Ans.

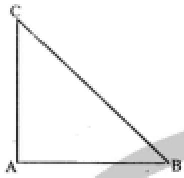
Question 10.

Solution:

In a right angled triangle.
one angle is = 90°
Sum of other two acute angles = 90°
But one acute angle = 53°
Second acute angle = 90° – 53° = 37°
Hence angle of the triangle with be 90°, 53°, 37° Ans.

Question 11.

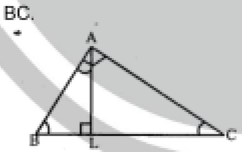
Solution:



Given : In Δ ABC,
∠ A = ∠B + ∠C
To Prove : ΔABC is a right-angled
Proof : We know that in ΔABC,
∠A + ∠B + ∠C = 180°
(angles of a triangle)
But ∠ A = ∠ B + C given
∠A + (∠B + ∠C) = 180°
= ∠A + ∠A = 180°
= 2∠A = 180°
= ∠ A = 90°
∠ A = 90°
Hence Δ ABC is a right-angled Hence proved.

Question 12.

Solution:
Given. In Δ ABC, ∠A = 90°
AL ⊥ BC.



To Prove : ∠BAL = ∠ACB
Proof : In Δ ABC, AL ⊥ BC
In right angled ΔALC,
∠ ACB + ∠ CAL = 90° ...(i)
(∴∠L = 90°)
But ∠ A = 90°
= ∠ BAL + ∠ CAL = 90° ...(ii)
From (i) and (ii),
∠BAL + ∠ CAL= ∠ ACB+ ∠CAL
= ∠ BAL = ∠ ACB Hence proved.

Question 13:

Solution:

Given. In ΔABC,
Each angle is less than the sum of the other two angles
∠A< ∠B + ∠C
∠B < ∠C + ∠A
and ∠C< ∠A + ∠C
Proof : ∠ A < ∠B + ∠C
Adding ∠ A both sides,
∠A + ∠A < ∠A + ∠B + ∠C => 2 ∠ A < 180°
(∴ ∠A+∠B+∠C=180°)
∠A = ∠A< 90
Similarly, we can prove that,
∠B < 90° and ∠C < 90°

∴ each angle is less than 90°

Hence, triangle is an acute angled triangle. Hence proved.

Question 14.

Solution:

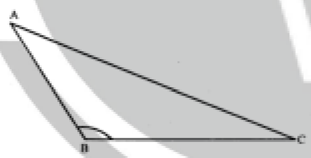
Given. In ΔABC,

$\angle B > \angle A + \angle C$

To Prove : ΔABC is obtuse angled

Proof : In ΔABC,

$\because \angle B > \angle A + \angle C$



Adding $\angle B$ both sides,

$\angle B + \angle B > \angle A + \angle B + \angle C$

$\Rightarrow 2\angle B > 180^\circ$

$(\because \angle A + \angle B + \angle C = 180^\circ)$

$\Rightarrow \angle B > \frac{180^\circ}{2} \Rightarrow \angle B > 90^\circ$

Hence ΔABC is obtuse angled.

Hence proved.

Question 15.

Solution:
In ΔABC
$\angle ABC = 43°$ and Ext. $\angle ACD = 128°$

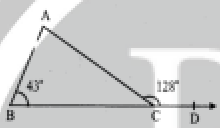
$\because \quad \angle ACD + \angle ACB = 180°$ (Linear pair)

$\Rightarrow 128° + \angle ACB = 180°$

$\Rightarrow \angle ACB = 180° - 128° = 52°$

But in ΔABC,

$\angle BAC + \angle ABC + \angle ACB = 180°$ (sum of angles of a triangle)



$\Rightarrow \angle BAC + 43° + 52° = 180°$

$\Rightarrow \angle BAC + 95° = 180°$

$\Rightarrow \angle BAC = 180° - 95°$

$\Rightarrow \angle BAC = 85°$

Hence, $\angle BAC = 85°$ and $\angle ACB = 52°$ Ans.

Question 16.

Solution:
$\angle ABC + \angle ABD = 180°$
(Linear pair)

$\Rightarrow \angle ABC + 106° = 180°$

$\Rightarrow \angle ABC = 180° - 106° = 74°$

Again $\angle ACE + \angle ACB = 180°$ (Linear pair)

$\Rightarrow 118° + \angle ACB = 180°$

$\Rightarrow \angle ACB = 180° - 118° = 62°$

But $\angle ABC + \angle ACB + \angle BAC = 180°$ (sum of angles of a triangle)

$\Rightarrow 74° + 62° + \angle BAC = 180°$

$\Rightarrow 136° + \angle BAC = 180°$

$\Rightarrow \angle BAC = 180° - 136°$

$\Rightarrow \angle BAC = 44°$

Hence, $\angle A = 44°$, $\angle B = 74°$ and $\angle C = 62°$ Ans.

Question 17.

Solution:

(i)In the figure, ∠BAE =110° and ∠ACD = 120°.

$\because$ $\angle ACD + \angle ACB = 180^\circ$ (Linear pair)

$\Rightarrow$ $120^\circ + \angle ACB = 180^\circ$

$\Rightarrow$ $\angle ACB = 180^\circ - 120^\circ = 60^\circ$

In ΔABC,

Ext. $\angle BAE = \angle ABC + \angle ACB$

$\Rightarrow$ $110^\circ = x + 60^\circ$

$\Rightarrow$ $x = 110^\circ - 60^\circ$

$x = 50^\circ$ Ans.

(*ii*) In the figure,

$\angle A = 30^\circ$, $\angle B = 40^\circ$ and $\angle D = 50^\circ$

In ΔABC,

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

(sum of angles of a triangle)

$\Rightarrow$ $30^\circ + 40^\circ + \angle C = 180^\circ$

$\Rightarrow$ $70^\circ + \angle C = 180^\circ$

$\Rightarrow$ $\angle C = 180^\circ - 70^\circ$

$\Rightarrow$ $\angle ACB = 180^\circ - 70^\circ = 110^\circ$

But $\angle ACB + \angle ACD = 180^\circ$ (Linear pair)

$\Rightarrow$ $110^\circ + \angle ACD = 180^\circ$

$\Rightarrow$ $\angle ACD = 180^\circ - 110^\circ = 70^\circ$

Now in ΔECD,

Ext. $\angle AED = \angle ACD + \angle CDE$

$\Rightarrow$ $x^\circ = 70^\circ + 50^\circ = 120^\circ$

Hence $x^\circ = 120^\circ$ Ans.

(*iii*) In the given figure,

$\angle EAF = 60^\circ$, $\angle ACD = 115^\circ$

$\because$ $\angle EAF = \angle BAC$

(Vertically opposite angles)

$\therefore$ $\angle BAC = 60^\circ$

In ΔABC.

Ext. $\angle ACD = \angle BAC + \angle ABC$

$\Rightarrow$ $115^\circ = 60^\circ + x^\circ$

$\Rightarrow$ $x^\circ = 115^\circ - 60^\circ = 55^\circ$

Hence $x^\circ = 55^\circ$ Ans.

(*iv*) In the figure,

$\angle BAE = 60^\circ$, $\angle ECD = 45^\circ$

and AB || CD.

$\because$ AB || CD

$\therefore$ $\angle BAD = \angle EDC$ (Alternate angles)

$\therefore$ $\angle EDC = 60^\circ$

($\because \angle BAD$ or $\angle BAE = 60^\circ$)

Now in ΔECD,

$\angle DEC + \angle ECD + \angle EDC = 180^\circ$

(Sum of angles of a triangle)

$\Rightarrow$ $x^\circ + 45^\circ + 60^\circ = 180^\circ$

$\Rightarrow$ $x^\circ + 105^\circ = 180^\circ$

$\Rightarrow$ $x^\circ = 180^\circ - 105^\circ = 75^\circ$

Hence $x = 75^\circ$ Ans.

(*v*) In ΔABC,

$\angle A = 40^\circ$, $\angle C = 90^\circ$

$\angle BED = 100^\circ$

Now in ΔABC,

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

(sum of angles of a triangle)

$\Rightarrow$ $40^\circ + \angle B + 90^\circ = 180^\circ$

$\Rightarrow$ $\angle B + 130^\circ = 180^\circ$

$\Rightarrow$ $\angle B = 180^\circ - 130^\circ = 50^\circ$

Similarly in ΔBED

$\angle B + \angle BED + \angle D = 180^\circ$

$\Rightarrow$ $50^\circ + 100^\circ + x^\circ = 180^\circ$

$\Rightarrow$ $150^\circ + x^\circ = 180^\circ$

$\Rightarrow$ $x = 180^\circ - 150^\circ = 30^\circ$

(*vi*) In the figure,

$\angle A = 75^\circ$, $\angle B = 65^\circ$,

$\angle C = 110^\circ$

Now in ΔABE

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

(sum of angles of a triangle)

$\Rightarrow$ $75^\circ + 65^\circ + \angle AEB = 80^\circ$

$\Rightarrow$ $140^\circ + \angle AEB = 180^\circ$

$\Rightarrow \angle AED = 180^\circ - 140^\circ = 40^\circ$

But $\angle DEC = \angle AEQ$

(vertically opposite angles)

$\therefore \angle DEC = 40^\circ$

Now in ΔDEC,

$\angle DEC + \angle D + \angle C = 180^\circ$

(sum of angles of a triangle)

$\Rightarrow 40^\circ + x^\circ + 110^\circ = 180^\circ$

$\Rightarrow 150^\circ + x^\circ = 180^\circ$

$\Rightarrow x^\circ = 180^\circ - 150^\circ = 30^\circ$

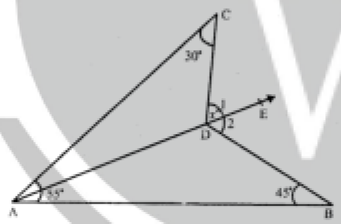
Hence $x = 30^\circ$ Ans.

Question 18.

Solution:

In the figure,

$\angle A = 55°$, $\angle B = 45°$, $\angle C = 30°$ Join AD and produce it to E



Now in ΔACD, AD is produced

$\therefore$ Ext. $\angle 1 = \angle C + \angle 3$ ...(i)

and in ΔADB, side AD is produced

$\therefore$ Ext. $\angle 2 = \angle B + \angle 4$ ...(ii)

Adding (i) and (ii)

$\angle 1 + \angle 2 = \angle C + \angle 3 + \angle 4 + \angle B$

$\Rightarrow \angle BDC = \angle B + \angle A + \angle C$

$\Rightarrow x^\circ = 30^\circ + 55^\circ + 45^\circ = 130^\circ$

Hence $x^\circ = 130^\circ$

Question 19.

Solution:

In the figure,

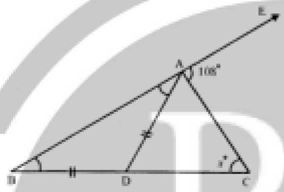
$\angle EAC = 108°$,

AD divides $\angle BAC$ in the ratio 1 : 3

and AD = DB

$\angle EAC + \angle BAC = 180°$

(Linear pair)



$\Rightarrow$ $108° + \angle BAC = 180°$

$\Rightarrow$ $\angle BAC = 180° - 108° = 72°$

$\because$ AD, divides $\angle BAC$ in the ratio = 1 : 3

$\therefore$ $\angle BAD = \frac{1 \times 72°}{1+3} = \frac{1 \times 72°}{4} = 18°$

and $\angle DAC = \frac{3 \times 72°}{1+3} = \frac{3 \times 72°}{4} = 54°$

$\because$ AD = BD (given)

$\therefore$ $\angle BAD = \angle ABD = 18°$

Now in ΔABC,

$\angle BAC + ACB + \angle ABC = 180°$

(Angles of a triangle)

$\Rightarrow$ $72° + x° + 18° = 180°$

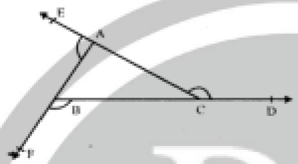
$\Rightarrow$ $x° + 90° = 180°$

$\Rightarrow$ $x = 180° - 90°$

$\Rightarrow$ $x = 90°$ Ans.

Question 20.

Solution:
Sides BC, CA and AB
are produced in order forming exterior
angles ∠ ACD,



∠BAE and ∠CBF respectively

To Prove : ∠ACD + ∠BAE + ∠CBF = 4 right angles.

Proof : In Δ ABC,

∠A + ∠B + ∠C = 180° or 2*rt* angle.

But ∠ACD + ∠C = 180°

or 2*rt* angles ...(*i*) (Linear pair)

Similarly ∠BAE + ∠A = 2*rt*. angles ...(*ii*)

and ∠CBF + ∠B = 2 *rt*. angles ...(*iii*)

Adding (*i*), (*ii*) and (*iii*), we get :

∠ACD + ∠C + ∠BAE + ∠A + ∠CBF + ∠B = 2*rt* angles + 2*rt*. angles + 2*rt* angles

⇒ ∠ACD + ∠BAE + ∠CBF + ∠A + ∠B + ∠C = 6 *rt*. angles

⇒ ∠ACD + ∠BAE + ∠CBF + 2*rt*. angles = 6 *rt*. angles (∵ ∠A + ∠B + ∠C = 2 *rt*. angles)

⇒ ∠ACD + ∠BAE + ∠CBF = 6 *rt*. angles – 2*rt*. angles

⇒ ∠ACD + ∠BAE + ∠CBF = 4*rt*. angles.

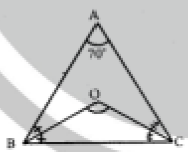
Hence proved.

Question 21.

Solution:
Given : Two Δ s DFB and ACF intersect each other as shown in the figure.
To Prove : ∠A + ∠B + ∠C + ∠D + ∠E + ∠F = 360°
Proof : In Δ DFB,
∠D + ∠F + ∠B = 180°
(sum of angles of a triangle)
Similarly,in Δ ACE
∠A + ∠C + ∠E = 180° ...(ii)
Adding (i) and (ii), we get :
∠D + ∠F + ∠B+ ∠A+ ∠C + ∠E = 180° + 180°
= ∠A+∠B+∠C+∠D+∠E + ∠ F = 360°
Hence proved.

Question 22.

Solution:
In the figure,
ABC is a triangle
and OB and OC are the angle
bisectors of ∠ B and ∠ C meeting each other at O.
∠ A = 70°
In Δ ABC,
∠A + ∠B + ∠C = 180°
(sum of angles of a triangle)



$\Rightarrow\ 70^\circ + \angle B + \angle C = 180^\circ$

$\Rightarrow\ \angle B + \angle C = 180^\circ - 70^\circ = 110^\circ$

or $\frac{1}{2}\angle B + \frac{1}{2}\angle C = \frac{110^\circ}{2} = 55^\circ$ ...(*i*)

Now in Δ OBC,

$$\angle BOC + \angle OBC + \angle OCB = 180^\circ$$

(angle of a triangle)

But $\angle OBC = \frac{1}{2} \angle B$

($\because$ OB is the bisector of $\angle B$)

and $\angle OCB = \frac{1}{2} \angle C$

($\because$ OC is the bisector of $\angle C$)

$\therefore \quad \angle BOC + \frac{1}{2} \angle B + \frac{1}{2} \angle C = 180^\circ$

$\Rightarrow \quad \angle BOC + 55^\circ = 180^\circ$ [from (*i*)]

$\Rightarrow \quad \angle BOC = 180^\circ - 55^\circ = 125^\circ$

$\therefore \quad \angle BOC = 125^\circ$ Ans.

Or

We know that in *a* Δ ABC, if OB and OC are bisectors of $\angle B$ and $\angle C$ respectively meeting at O.

$\therefore \quad \angle BOC = 90^\circ + \frac{1}{2} \angle A$

$= 90^\circ + \frac{1}{2} \times 70^\circ$

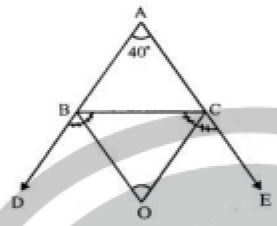
$= 90^\circ + 35^\circ = 125^\circ$ Ans.

Question 23.

Solution:

In ΔABC, $\angle$ A = 40°

Sides AB and AC are produced forming exterior angles $\angle$ CBD and $\angle$ BCE



OB and OC are the bisectors of $\angle CBD$ and $\angle BCF$ respectively meeting each other at O

Now in ΔABC, $\angle A = 40^\circ$

$\therefore \quad \angle B + \angle C = 180^\circ - 40^\circ = 140^\circ$

and sum of their exterior angles = $180^\circ + 180^\circ - 140^\circ$

$= 360^\circ - 140^\circ = 220^\circ$

$\Rightarrow \quad \angle CBD + \angle BCE = 220^\circ$

OB and OC are their bisectors

$\therefore \frac{1}{2} \angle CBD + \frac{1}{2} \angle BCE$

$= 220^\circ \times \frac{1}{2}$

$= 110^\circ$

$\Rightarrow \quad \angle CBO + \angle BCO = 110^\circ$

Now in ΔOBC,

$\angle CBO + \angle BCO + \angle BOC = 180^\circ$
(sum of angles of a triangle)

$\Rightarrow \quad 110^\circ + \angle BOC = 180^\circ$

$\Rightarrow \quad \angle BOC = 180^\circ - 110^\circ = 70^\circ$ Ans.

Or

We know that in a triangle ABC, if OB and OC are the bisectors of Ext. $\angle B$ and Ext $\angle C$ respectively meeting at O.

then $\angle BOC = 90^\circ - \frac{1}{2} \angle A$

$\Rightarrow \angle BOC = 90^\circ - \frac{1}{2}(40^\circ)$

$(\because \angle A = 40^\circ)$

$= 90^\circ - 20^\circ = 70^\circ$ Ans.

Question 24.

Solution:

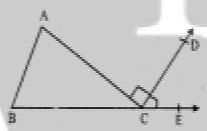
In the figure, ΔABC is triangle and $\angle A : \angle B : \angle C = 3 : 2 : 1$

$AC \perp CD$.

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

(sum of angles of a triangle)

But $\angle A : \angle B : \angle C = 3 : 2 : 1$



Let $\angle A = 3x$, then $\angle B = 2x$ and $\angle C = x$

$\therefore 3x + 2x + x = 180^\circ$

$\Rightarrow 6x = 180^\circ$

$\Rightarrow x = \frac{180^\circ}{6} = 30^\circ$

$\therefore \angle A = 3x = 3 \times 30^\circ = 90^\circ$

$\angle B = 2x = 2 \times 30^\circ = 60^\circ$

and $\angle C = x = 30^\circ$

Again, In ΔABC, BC is produced to E

$\therefore$ Ext. $\angle ACE = \angle A + \angle B$

$\Rightarrow \angle ACD + \angle ECD = \angle A + \angle B$

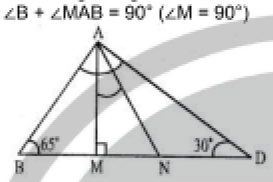
$\Rightarrow 90^\circ + \angle ECD = 90^\circ + 60^\circ = 150^\circ$

$\Rightarrow \angle ECD = 150^\circ - 90^\circ = 60^\circ$

Hence $\angle ECD = 60^\circ$ Ans.

Question 25.

Solution:
In Δ ABC
AN is the bisector of $\angle$ A
$\angle NAB = 85 \angle A$.
Now in right angled Δ AMB,
$\angle B + \angle MAB = 90^\circ$ ($\angle M = 90^\circ$)



$\Rightarrow \angle MAB = 90^\circ - \angle B$

$\therefore \angle MAN = \angle NAB - \angle MAB$

$= \frac{1}{2} \angle A - (90^\circ - \angle B) = \frac{1}{2} \angle A - 90^\circ$
$+ \angle B$

$= \frac{1}{2} \angle A - \left(\frac{1}{2}\angle A + \frac{1}{2}\angle B + \frac{1}{2}\angle C\right) + \angle B$

$(\because \frac{1}{2} \angle A + \frac{1}{2} \angle B + \frac{1}{2} \angle C = 90^\circ)$

$= \frac{1}{2}\angle A - \frac{1}{2}\angle A - \frac{1}{2}\angle B - \frac{1}{2}\angle C + \angle B$

$= \frac{1}{2} \angle B - \frac{1}{2}\angle C = \frac{1}{2}(\angle B - \angle C)$

But $\angle B = 65^\circ$ and $\angle C = 30^\circ$

$\therefore \angle MAN = \frac{1}{2} (65^\circ - 30^\circ) = \frac{1}{2} \times 35^\circ$

$= (17.5)^\circ$ Ans.

Question 26.

Solution:
(i) False : As a triangle has only one right angle
(ii) True : If two angles will be obtuse, then the third angle will not exist.
(iii) False : As an acute angled triangle all the three angles are acute.
(iv) False : As if each angle will be less than 60°, then their sum will be less than 60° x 3 = 180°, which is not true.
(v) True : As the sum of three angles will be 60° x 3 = 180°, which is true.
(vi) True : A triangle can be possible if the sum of its angles is 180°
But the given triangle having angles 10° + 80° + 100° = 190° is not possible.

Benefits of RS Aggarwal Solutions Class 9 Maths Chapter 9 - Congruence of Triangles and Inequalities in a Triangle

Here are the benefits of using RS Aggarwal Solutions Class 9 Maths Chapter 9 - "Congruence of Triangles and Inequalities in a Triangle" presented in points:

Conceptual Clarity: The solutions provide a clear explanation of the concepts related to congruence of triangles and inequalities in a triangle, helping students understand the topic better.

Step-by-Step Guidance: Each problem is solved in a systematic manner, providing step-by-step guidance on how to approach and solve problems related to congruence and inequalities in triangles.

Improved Problem-Solving Skills: By practicing with these solutions, students can enhance their problem-solving skills and learn different techniques to solve problems related to triangle congruence and inequalities.

Confidence Building: Regular practice with these solutions can boost students' confidence in tackling questions on congruence and inequalities in triangles, preparing them well for exams.

Comprehensive Coverage: The solutions cover all the important concepts and types of problems related to congruence and inequalities in triangles, ensuring comprehensive preparation for exams.