

ANALYSIS OF RESPONSES CBT CLASS IX MATHS OCT 2023

Average- 4.39 / 10 points

Median- 4 / 10 points

Range- 0 -10 points

Total points distribution-

Scores	0	1	2	3	4	5	6	7	8	9	10
No. of Students	75	390	785	920	791	616	485	363	347	250	112

Frequently missed questions- (less than 50% students responded correctly)

Q.1- In triangle ABC, if $AB=BC$ and $\angle B = 70^\circ$, $\angle A$ will be:

Correct responses- 55°

2099 / 5134 (40.9%)

Explanation-

$AB=BC$, $\angle C=\angle A=x$ { Angle opposite to equal sides of a triangle are equal }

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

$$x + 70^\circ + x = 180^\circ$$

$$2x = 180^\circ - 70^\circ = 110^\circ$$

$$x = 55^\circ$$

$$\angle A = 55^\circ$$

Q.2- It is given that $\triangle ABC \cong \triangle FDE$ and $AB = 5$ cm, $\angle B = 40^\circ$ and $\angle A = 80^\circ$. Then which of the following is true?

Correct responses - $DF = 5$ cm, $\angle E = 60^\circ$

2436 / 5134 (44.4%)

Explanation-

if two or more triangles are congruent, then their corresponding angles and sides are congruent as well.

Q.3- In two triangles, ABC and PQR, $\angle A = 30^\circ$, $\angle B = 70^\circ$, $\angle P = 70^\circ$, $\angle Q = 80^\circ$ and $AB = RP$, then

Correct responses $\triangle ABC \cong \triangle RPQ$ 1970 / 5134 (38.37%)

Explanation-

The correct option is **D** $\triangle ABC \cong \triangle PRQ$

In $\triangle ABC$, $\angle A = 30^\circ$, $\angle B = 70^\circ$

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

[Angle sum property of triangle]

$$\angle C = 180^\circ - (30^\circ + 70^\circ)$$

$$\angle C = 80^\circ$$

In $\triangle PQR$, $\angle P = 70^\circ$, $\angle Q = 80^\circ$

So, $\angle R = 180^\circ - (\angle P + \angle Q)$ [Angle sum property of triangle]

$$\angle R = 180^\circ - (70^\circ + 80^\circ)$$

$$\angle R = 30^\circ$$

In the $\triangle ABC$ and $\triangle PQR$, we have

$$\angle C = \angle Q$$

$$\angle A = \angle P$$

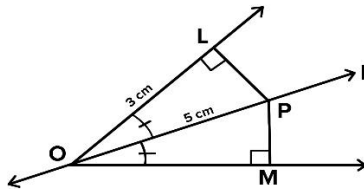
$$AB = PR \text{ [Given]}$$

$$\therefore \triangle ABC \cong \triangle PRQ \text{ [By AAS congruence]}$$

Q.4- In the given figure, find PM

Correct responses- 4 CM 1855 / 5134 (36.13%)

Explanation-

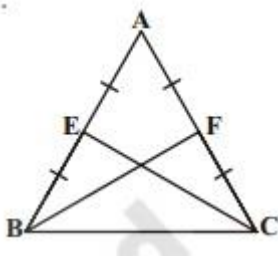


Q.6- E and F are respectively the mid points of equal sides AB and AC of triangle ABC .which of the following statement is true?

Correct responses- BF=CE 2243 / 5134 (43.7%)

Explanation- Given E and F are mid point of equal sides AB and AC of triangle ABC

In $\triangle ABF$ and $\triangle ACE$



$$AB = AC \text{ (given)}$$

$$\angle A = \angle A \text{ (common angle)}$$

$$AF = AE \text{ (halves of equal sides)}$$

$$\therefore \triangle ABF \cong \triangle ACE \text{ (SAS rule)}$$

$$\therefore BF = CF \text{ (CPCT)}$$

**Q.7- If ABC and DBC are two isosceles triangles on the same base BC. Then:
Correct responses - $\angle ABD = \angle ACD$ 2497 / 5134 (48.63%)**

Explanation-If ABC and DBC are two isosceles triangles on the same base BC, then $\triangle ABD \cong \triangle ACD$ by SSS congruence and $\angle ABD = \angle ACD$.

Q.8- In triangles ABC and PQR, $AB = AC$, $\angle C = \angle P$ and $\angle B = \angle Q$. The two triangles are

Correct responses- Isosceles but not congruent 2098 / 5134 (40.86%)

Explanation-In $\triangle ABC$,

$AB = AC$ (given)

$\Rightarrow \angle C = \angle B$ [angles opposite to equal sides are equal]

So, $\triangle ABC$ is an isosceles triangle.

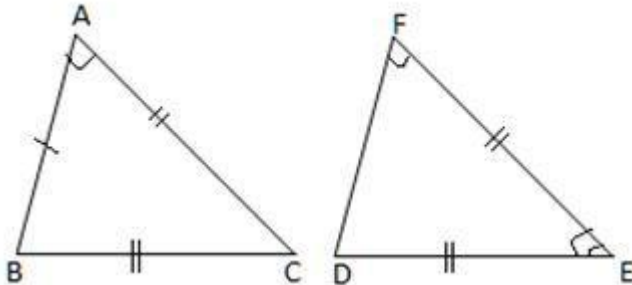
But it is given that $\angle B = \angle Q$

$\angle C = \angle P$

$\angle P = \angle Q$

$QR = PR$ [Sides opposite to equal angles are equal]

So, $\triangle PQR$ is also an isosceles triangle.



Therefore, both triangles are isosceles but not congruent. As, we know that AAA is not a criterion for congruence of triangles.

Q.9- In figure, if $AB=AC$, then the value of $\angle C$ is equal to:

Correct responses- 72° 1606 / 5134 (31.3%)

Explanation-

Given that, In $\triangle ABC$

$$AB = AC \text{ and}$$

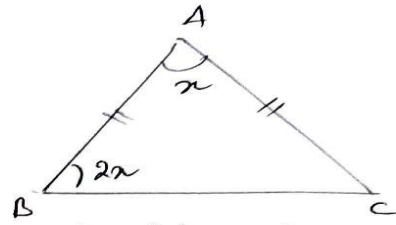
$$\angle A = x \text{ and } \angle B = 2x$$

We know that angle opposite to equal sides of a triangle are equal. Then

$$AB = AC$$

$$\angle B = \angle C$$

$$\angle B = \angle C = 2x \quad \text{--- (1)}$$



According to Angle sum property of a triangle,

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

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

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

$$5x = 180^\circ$$

$$x = \frac{180^\circ}{5}$$

$$\underline{\underline{x = 36^\circ}}$$

then $\angle C = 2x = 2 \times 36^\circ = \underline{\underline{72^\circ}}$

$$\underline{\underline{\angle C = 72^\circ}}$$

Q.10- In the given figure, triangles PQC and PRC are such that $QC = PR$ and $PQ = CR$. Then $\angle PCQ = ?$

Correct responses- $\angle CPR$ 1984 / 5134 (38.6%)

Explanation-

Here, we have

$$QC = PR \quad [\text{GIVEN}]$$

$$PQ = CR \quad [\text{GIVEN}]$$

$$PC = PC \quad [\text{COMMON}]$$

By SAS similarity criterion,

$$\triangle PQC \cong \triangle PRC.$$

Therefore by C.P.C.T,

$$\angle PCQ = \angle CPR$$

Hence, $\angle PCQ = \angle CPR$.

Other responses-

Q.5- In Triangle ABC and Triangle PQR, three equality relation between same parts are as follows: $AB=QP$, $\angle B = \angle P$ and $BC=PR$ State which of the congruence condition applies—

Correct responses- SAS 3,773 / 5,134 (73.5%)

Explanation-

In $\triangle ABC$ and $\triangle PQR$,

$$AB=QP, \angle B=\angle P \text{ and } BC=PR$$

The condition apply: SAS

