



মহাশিক্ষা বিভাগ (সি)
DEPARTMENT OF EDUCATION (S)

Government of Manipur

CHAPTER-7

CONGRUENCE OF TRIANGLES.

SOLUTIONS:

EXERCISE 7.1

1. Complete the following statements:

Soln: (a) Two line segments are congruent if they have the same length.

(b) Among two congruent angles, one has a measure of 70° , the measure of the other angle is also 70° .

(c) When we write $LA = LB$, we actually mean measure of LA is equal to the measures of LB.

2. Give any two real life examples for congruent shapes.

Ans: I) Two mathematical text book of class (VII) .

II) Two 800 Maruti cars.

3.Soln :

All the corresponding congruent when $\triangle ABC \cong \triangle FED$ are:

(i) $LA \longleftrightarrow LF$

(ii) $LB \longleftrightarrow LE$

(iii) $LC \longleftrightarrow LD$



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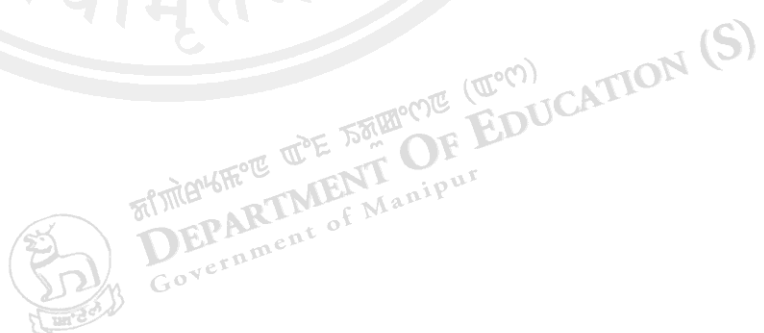
4. IF $\triangle DEF \cong \triangle BCA$, write the part of $\triangle BCA$ that correspond to

(i) $LE \longleftrightarrow LC$

(ii) $\overline{EF} \longleftrightarrow \overline{CA}$

(iii) $LF \longleftrightarrow LA$

(iv) $\overline{DF} \longleftrightarrow \overline{BA}$



EXERCISE 7.2

1. Which congruence criterion do you use in the following?

- (a) Soln: From the figure given in the text book we see the three corresponding sides of the two triangles

$$AC=DF, AB=DE \text{ \& } BC=EF$$

So, $\triangle ABC \cong \triangle DEF$ by SSS congruence criterion.

- (b) Soln: From the two triangles, we see that two sides and one corresponding angle are equal, then by SAS congruence criterion $\triangle PQR \cong \triangle XYZ$.

- (c) Soln: Here, two corresponding angles and a side of two triangles are equal then $\triangle LMN \cong \triangle GFH$ by ASA Congruence criterion.

- (d) Soln: Here, two corresponding angles of two triangles are equal and one angle of 90° is also equal then the two \triangle triangles $\triangle ABE \cong \triangle CDB$ by RHS Congruence Criterion.

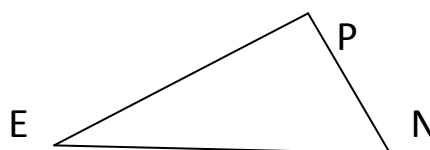
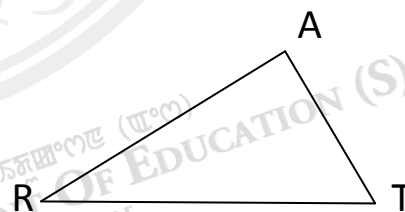
2. You want to show that $\triangle ART \cong \triangle PEN$

- (a) Soln: i) $AR=PE$

ii) $RT = EN$ & iii) $AT = PN$

- (b) soln:

i) $RT = EN$ & ii) $PN = AT$



(c) soln:

$$(i) \angle ART = \angle PEN$$

$$(ii) \angle RTA = \angle ENP.$$

3. Soln: Here, $\triangle AMP \cong \triangle AMQ$

Then,

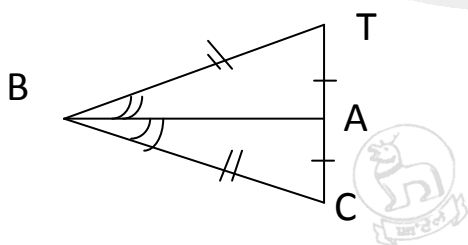
STEPS	REASONS
(i) $PM=QM$	(i) Given in the figure.
(ii) $\angle PMA = \angle QMA$	(ii) Given in the figure.
(iii) $AM=AM$	(iii) Common sides of the two triangle.
(iv) $\triangle AMP \cong \triangle AMQ$	(iv) By SAS.

4. Soln: No, the student not justified because AAA congruence criterion does not exist in the congruence condition.

5. Soln: From the figure of the two triangles $AR=WO$, $AT=NO$ & $\angle RAT = \angle NOW$

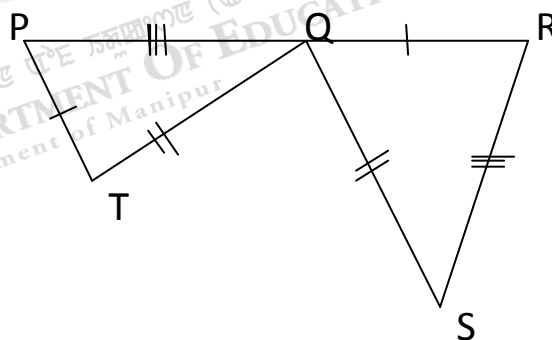
Therefore $\triangle ART \cong \triangle NOW$.

6. Soln: Complete the congruence statement.



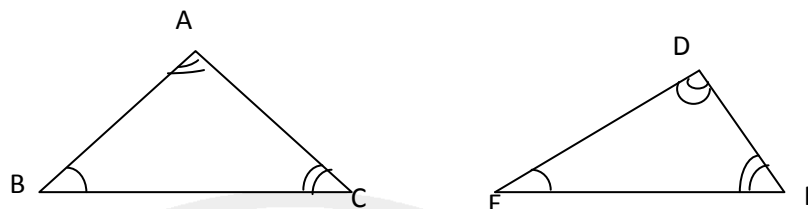
$$\triangle BCA \cong \triangle BTA, \text{ By SAS.}$$

$$\triangle QRS \cong \triangle TPQ, \text{ By SAS.}$$



7. In a squared sheet, draw two triangles of equal area such that
 Soln: The two triangles are congruent. The perimeter are sum of all sides of the two triangles.

8.Soln:



9. Soln: Here $\angle B = \angle Q [90^\circ]$

$\angle BCA = \angle PRQ$ [Given]

$AC = PR$

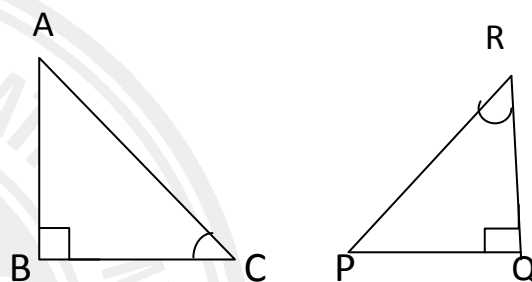
Then, $\triangle ABC \cong \triangle PQR$ by ASA.

10. Soln: Here, $\angle B = \angle E [90^\circ]$

$\angle BAC = \angle FED$.

$BC = DE$

Therefore, $\triangle ABC \cong \triangle DEF$ by RHS Congruence Criterion.



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