

EXERCISE 7.2



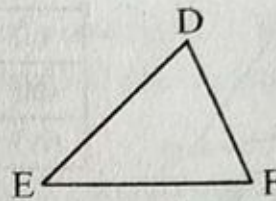
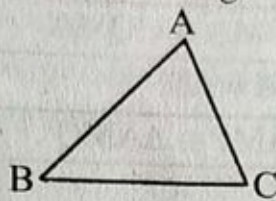
1. Which congruence criterion do you use in the following?

(a) **Given:** $AC = DF$

$AB = DE$

$BC = EF$

So, $\triangle ABC \cong \triangle DEF$



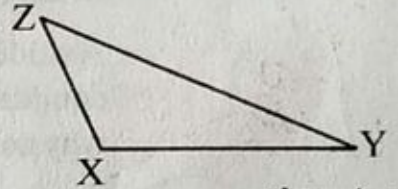
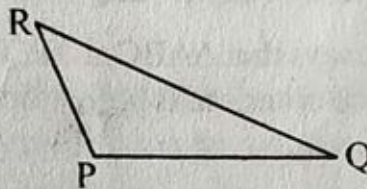
→ **SSS** congruence criterion

(b) **Given:** $ZX = RP$

$RQ = ZY$

$\angle PRQ = \angle XZY$

So, $\triangle PQR \cong \triangle XYZ$



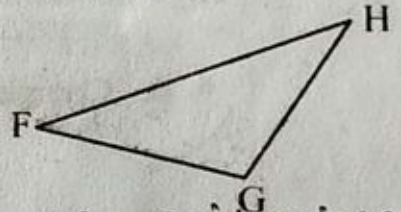
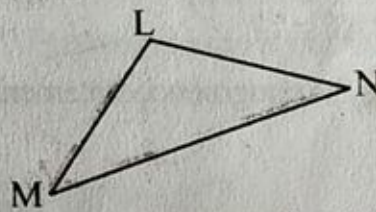
→ **SAS** congruence criterion

(c) **Given:** $\angle MLN = \angle FGH$

$\angle NML = \angle GFH$

$ML = FG$

So, $\triangle LMN \cong \triangle GFH$



→ **ASA** congruence criterion

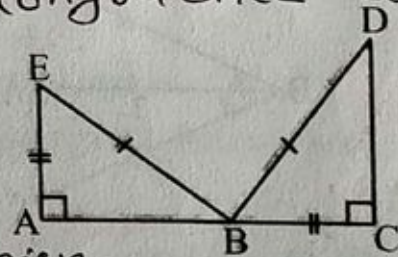
(d) **Given:** $EB = DB$

$AE = BC$

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

So, $\triangle ABE \cong \triangle CDB$

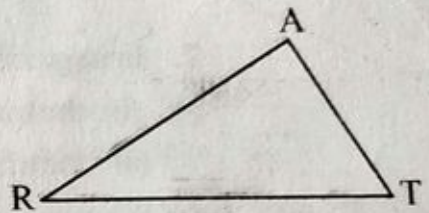
→ **RHS** criterion.



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

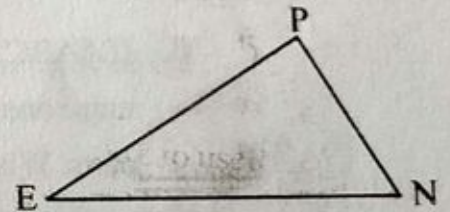
(a) If you have to use SSS criterion, then you need to show

(i) $AR = PE$ (ii) $RT = EN$ (iii) $AT = PN$



(b) If it is given that $\angle T = \angle N$ and you are to use SAS criterion, you need to have

(i) $RT = EN$ and (ii) $PN = AT$



(c) If it is given that $AT = PN$ and you are to use ASA criterion, you need to have

(i) ?

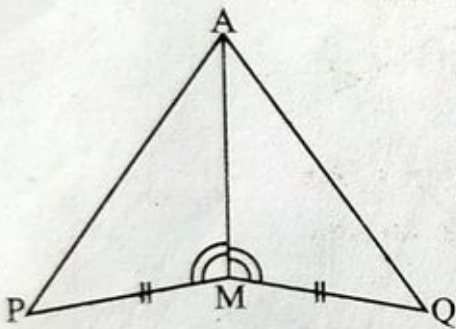
(ii) ?

$\angle A = \angle P$

$\angle T = \angle N$

3. You have to show that $\triangle AMP \cong \triangle AMQ$.

In the following proof, supply the missing reasons.



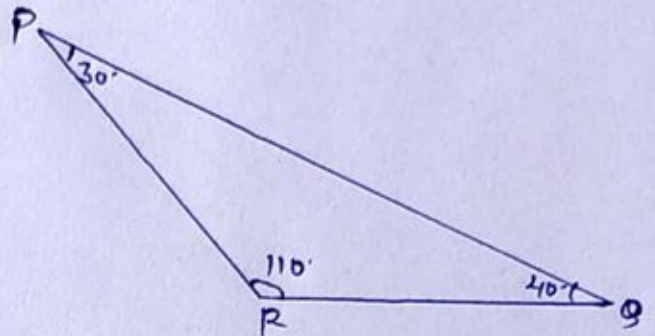
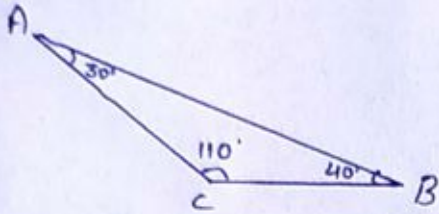
Steps	Reasons
(i) $PM = QM$	(i) Given
(ii) $\angle PMA = \angle QMA$	(ii) Given
(iii) $AM = AM$	(iii) Common
(iv) $\triangle AMP \cong \triangle AMQ$	(iv) SAS

④ In $\triangle ABC$, $\angle A = 30^\circ$, $\angle B = 40^\circ$ and $\angle C = 110^\circ$

In $\triangle PQR$, $\angle P = 30^\circ$, $\angle Q = 40^\circ$ and $\angle R = 110^\circ$

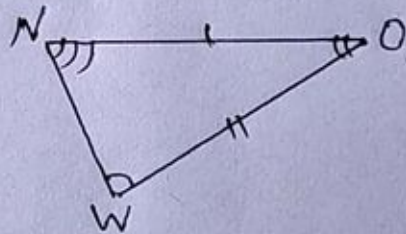
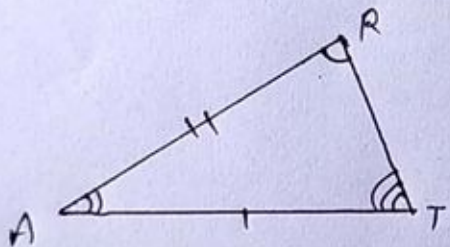
A student says that $\triangle ABC \cong \triangle PQR$ by AAA congruence criterion. Is he justified? why or why not?

Solⁿ:-



No, because they may be of different sizes as no information about the sides is given.

⑤ In the figure, the two triangles are congruent. The corresponding parts are marked. We can write $\triangle RAT \cong ?$



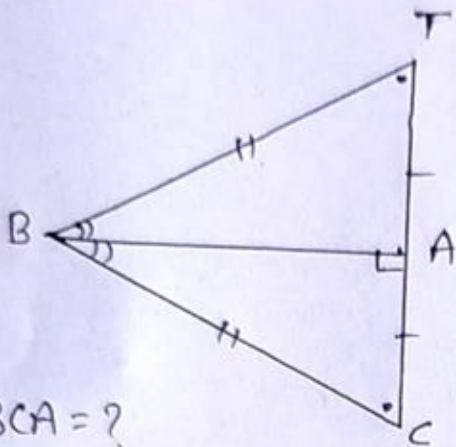
Solⁿ:-

$$\triangle RAT \cong \triangle WON$$

Here

$$\begin{array}{l|l} \angle R = \angle W & AT = ON \\ \angle A = \angle O & RA = WO \\ \angle T = \angle N & \end{array}$$

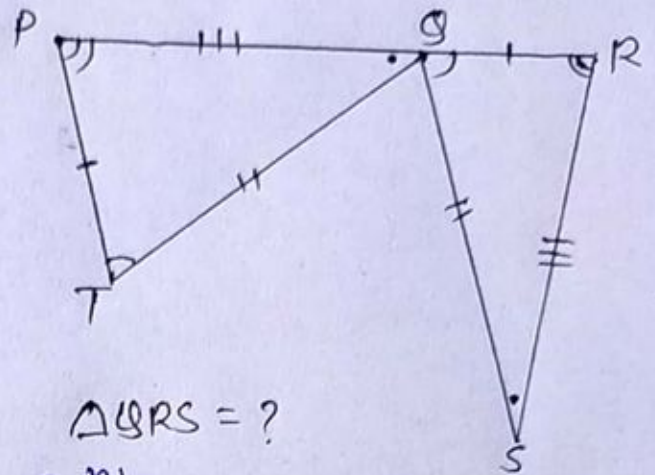
⑥ Complete the congruence statement:



$\triangle BCA = ?$

Solⁿ

$$\triangle BCA \cong \triangle BTA$$



$\triangle QRS = ?$

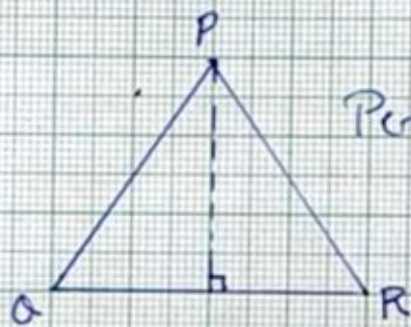
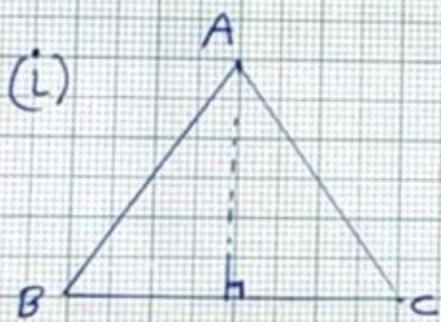
Solⁿ

$$\triangle QRS \cong \triangle TPS$$

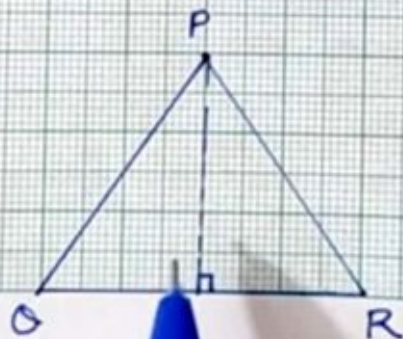
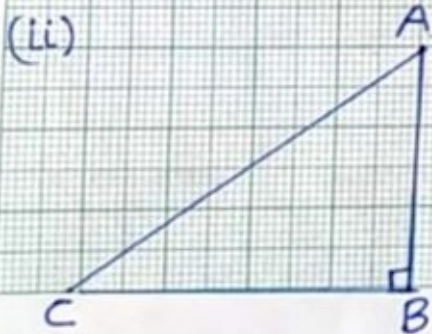
⑦ In a squared sheet, draw two triangles of equal areas such that

- (i) the triangles are congruent.
- (ii) the triangles are not congruent

What can you say about their perimeters?

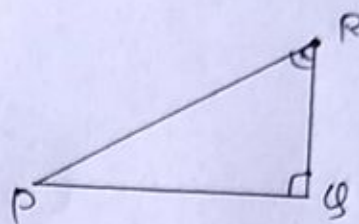
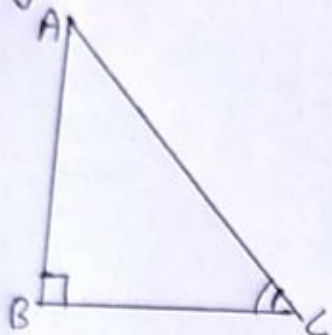


Perimeter
will be
same.



perimeter will
not be same

8) If $\triangle ABC$ and $\triangle PQR$ are to be congruent, name one additional pair of corresponding parts. What criterion did you use?



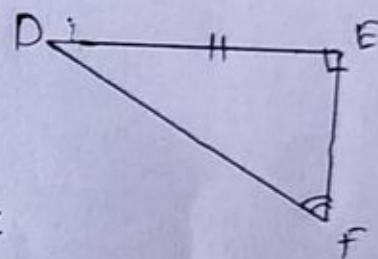
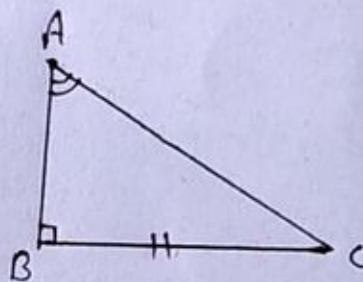
Soln.

(i) $BC = QR$

(ii) ASA Criterion

9) Explain, why

$$\triangle ABC \cong \triangle FED$$



Soln.

In $\triangle ABC$ and $\triangle FED$

$\angle B = \angle E$ (A)

$BC = ED$ (S)

$\angle C = \angle D$ (A) \therefore by A.S.P. of Δ

- SSS x
- SAS x
- ASA x
- RHS x

$\therefore \boxed{\triangle ABC \cong \triangle FED}$ { by ASA criterion }