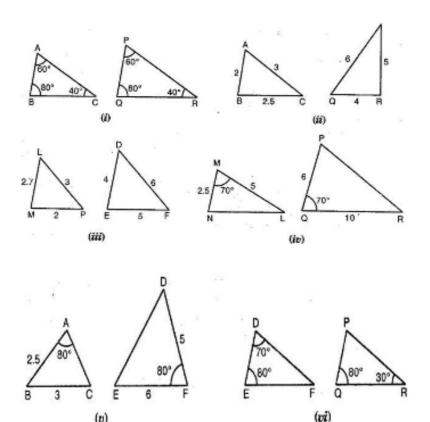


NCERT Solutions For Class 10 Chapter 6 Triangles Exercise 6.3

1. State which pairs of triangles in figure, are similar. Write the similarity criterion used by you for answering the question and also write the pairs of similar triangles in the symbolic form:



Ans. (i) In \triangle s ABC and PQR, we observe that, $\angle A = \angle P = 60^{\circ}$, $\angle B = \angle Q = 80^{\circ}$ and $\angle C = \angle R = 40^{\circ}$ \therefore By AAA criterion of similarity, $\triangle ABC \sim \triangle PQR$

(ii) In Δ s ABC and PQR, we observe that,

$$\frac{AB}{QR} = \frac{BC}{RP} = \frac{CA}{PQ} = \frac{1}{2}$$

... By SSS criterion of similarity, ΔABC ~ ΔPQR

(iii) In \triangle s LMP and DEF, we observe that, the ratio of the sides of these triangles is not equal.

Therefore, these two triangles are not similar.

(iv) In \triangle s MNL and QPR, we observe that, \angle M = \angle Q = 70°

But,
$$\frac{MN}{PQ} \neq \frac{ML}{QR}$$

- ... These two triangles are not similar as they do not satisfy SAS criterion of similarity.
- (v) In \triangle s ABC and FDE, we have, $\angle A = \angle F = 80^{\circ}$

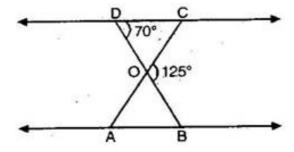
But,
$$\frac{AB}{DE} \neq \frac{AC}{DF}$$
 [: AC is not given]

- ... These two triangles are not similar as they do not satisfy SAS criterion of similarity.
- (vi) In \triangle s DEF and PQR, we have, \angle D = \angle P = 70°

$$\Gamma : \angle P = 180^{\circ} - 80^{\circ} - 30^{\circ} = 70^{\circ}$$

And
$$\angle E = \angle Q = 80^{\circ}$$

- ... By AAA criterion of similarity, $\Delta DEF \sim \Delta PQR$
- **2.** In figure, \triangle ODC \triangle OBA, \angle BOC = $^{125^{\circ}}$ and \angle CDO = $^{70^{\circ}}$. Find \angle DOC, \angle DCO and \angle OAB.



Ans. Since BD is a line and OC is a ray on it.

$$\Rightarrow \angle DOC + 125^{\circ} = 180^{\circ}$$

$$\Rightarrow \angle DOC = 55^{\circ}$$

In \triangle CDO, we have \angle CDO + \angle DOC + \angle DCO = 180°

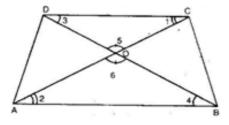
$$\Rightarrow$$
 70° + 55° + \angle DCO = 180°

It is given that \triangle ODC \sim \triangle OBA

Hence \angle DOC = 55°, \angle DCO = 55° and \angle OAB = 55°

3. Diagonals AC and BD of a trapezium ABCD with AB \parallel CD intersect each other at the point O. Using a similarity criterion for two triangles, show that $\frac{OA}{OC} = \frac{OB}{OD}$.

Ans. Given: ABCD is a trapezium in which AB || DC.



 $\frac{OA}{OC} = \frac{OB}{OD}$

To Prove: OC OD

Proof: In Δ s OAB and OCD, we have,

 \angle 5 = \angle 6 [Vertically opposite angles]

 $\angle 1 = \angle 2$ [Alternate angles]

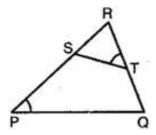
And $\angle 3 = \angle 4$ [Alternate angles]

∴ By AAA criterion of similarity, △OAB ~ △ ODC

Hence,
$$\frac{OA}{OC} = \frac{OB}{OD}$$

5. S and T are points on sides PR and QR of a \triangle PQR such that \triangle P = \triangle RTS. Show that \triangle RPQ $\sim \triangle$ RTS.

Ans. In Δs RPQ and RTS, we have



 \angle RPQ = \angle RTS [Given]

 \angle PRQ = \angle TRS [Common]

... By AA-criterion of similarity,

 Δ RPQ ~ Δ RTS

******* END *******