ODM EDUCATIONAL GROUP
Changing your Tomorrow

TRIANGLES
PPT-4

SUBJECT : MATHEMATICS
CHAPTER NUMBER: 06
CHAPTER NAME :TRIANGLES

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PREVIOUS KNOWLEDGE TEST

1.Two triangles are similiar, if (i) their corresponding angles are equal and (ii) their corresponding sides are in the same ratio (or proportion).

2. Theorem 6.1 : If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio.

3. Theorem 6.2 (Converse of BPT): If a line divides any two sides of a triangle in the same ratio, then the line is parallel to the third side

LEARNING OUTCOME

11.Students will be able to know the Criteria for similarity of triangles. (AAA, SSS, & SAS)

2.Students will be able to prove problems involving AAA, SSS, & SAS similarity criteria.

3.Students will be able to solve problems based on similarity of triangles.

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Criteria for similarity of triangles

AAA; https://youtu.be/rvWz4n2x0HY (7.05

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Criteria for similarity of triangles

SSS,:https://youtu.be/Pj-NmwISTHQ (4.00)

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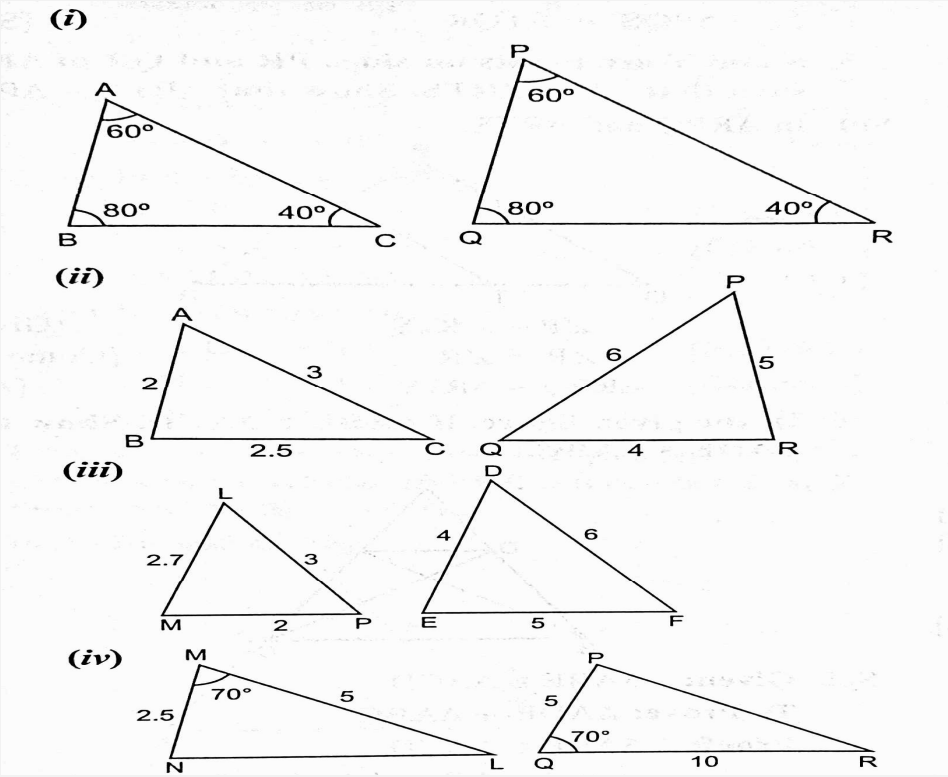
Criteria for similarity of triangles

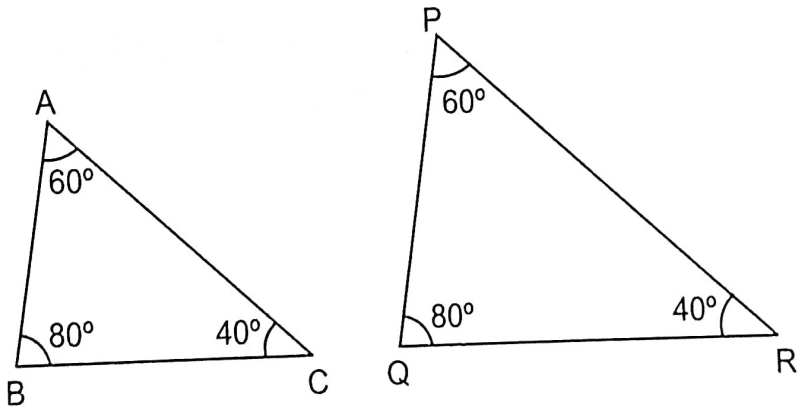
SAS: https://youtu.be/ASXh7CLN208 (6.05)

- Two triangles are similar if either of the following three criterion's are satisfied:
- AAA similarity Criterion. If two triangles are equiangular, then they are similar.
- Corollary(AA similarity). If two angles of one triangle are respectively equal to two angles of another triangle, then the two triangles are similar.
- SSS Similarity Criterion. If the corresponding sides of two triangles are proportional, then they are similar.
- SAS Similarity Criterion. If in two triangles, one pair of corresponding sides are proportional and the included angles are equal, then the two triangles are similar.
- **Results in Similar Triangles based on Similarity Criterion:**

- Ratio of corresponding sides = Ratio of corresponding perimeters
- Ratio of corresponding sides = Ratio of corresponding medians
- Ratio of corresponding sides = Ratio of corresponding altitudes
- Ratio of corresponding sides = Ratio of corresponding angle bisector segments.

- State which pairs of triangles in Fig. 6.34 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 :





(*i*) In ΔABC and ΔPQR

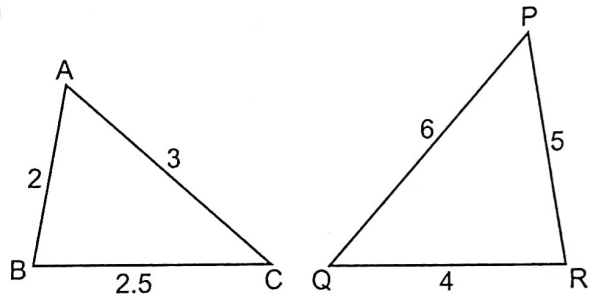
$\angle A = \angle P$ [Each 60°]

$\angle B = \angle Q$ [Each 80°]

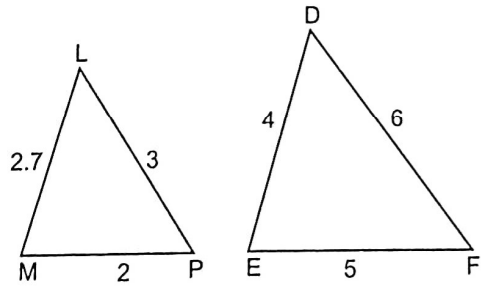
$\angle C = \angle R$ [Each 40°]

$\therefore \Delta ABC \sim \Delta PQR$ [AAA criterion]

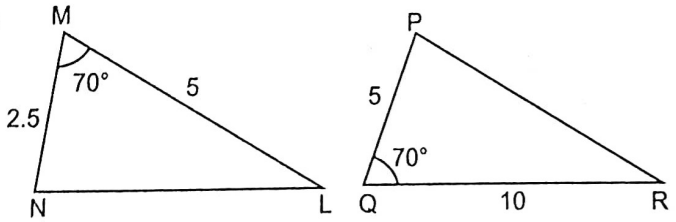
(*ii*)



(*iii*)



(*iv*)



(*ii*) In ΔABC and ΔPQR,

$$\frac{BC}{PR} = \frac{2.5}{5} = \frac{1}{2},$$

$$\frac{AB}{QR} = \frac{2}{4} = \frac{1}{2}, \frac{AC}{PQ} = \frac{3}{6} = \frac{1}{2}$$

Hence, $\Delta ABC \sim \Delta QRP$ [SSS criterion]

(*iii*) In ΔLMP and ΔEFD

$$\frac{LM}{EF} = \frac{2.7}{5}; \frac{LP}{DF} = \frac{3}{6} = \frac{1}{2};$$

$$\frac{MP}{ED} = \frac{2}{4} = \frac{1}{2}$$

$\therefore$ ΔLMP is not similar to ΔEFD.

Since the three ratios are not same.

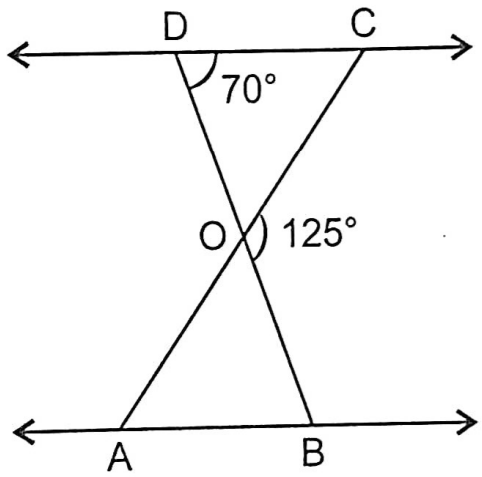
(*iv*) In ΔMNL and ΔPQR

$$\frac{MN}{PQ} = \frac{2.5}{5} = \frac{1}{2}; \frac{ML}{QR} = \frac{5}{10} = \frac{1}{2}$$

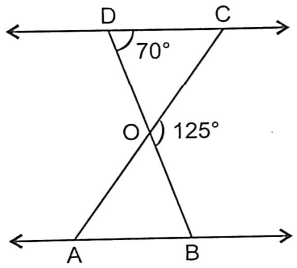
$\angle M = \angle Q = 70°$

$\Delta NML \sim \Delta PQR$ [SAS]

In the given figure, $\Delta ODC \sim \Delta OBA$, $\angle BOC = 125°$ and $\angle CDO = 70°$. Find $\angle DOC$, $\angle DCO$ and $\angle OAB$.



In the given figure, $\Delta ODC \sim \Delta OBA$, $\angle BOC = 125°$ and $\angle CDO = 70°$. Find $\angle DOC$, $\angle DCO$ and $\angle OAB$.



$$\angle DOC + \angle BOC = 180°$$

$$\angle DOC + 125° = 180°$$

$$\Rightarrow \quad \angle DOC = 180° - 125° = 55°$$

In Δ DOC,

$$\angle DOC + \angle ODC + \angle DCO = 180°$$

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

$$125° + \angle DCO = 180°$$

$$\angle DCO = 180° - 125° = 55°$$

$$\Delta ODC \sim \Delta OBA$$

$$\angle OAB = \angle DCO = 55°$$

$$\angle DOC = \angle OAB = 55°$$

HOME ASSIGNMENT Ex. 6.3 Q. No 1 to Q2

AHA

1.A girl of height 90 cm is walking away from the base of a lamp-post at a speed of 1.2 m/s. If the lamp is 3.6 m above the ground, find the length of her shadow after 4 seconds.

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THANKING YOU

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