INDIAN SCHOOL NIZWA - WORKSHEET

MATHEMATICS

6. Triangles

Nam_____ Date:2-6-25 Class: X Sec: ___

1. Which of the following is ***not*** the criterion for similarity of triangles ?

(A) AAA (B) SSS

(C) SAS (D) RHS

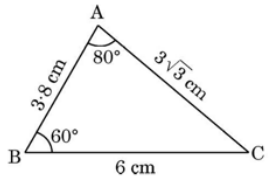
2. From the figures given below, which of the following is true about the measure of $\angle P$?

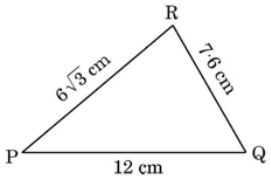
(A) $\angle P = 60°$

(B) $\angle P = 80°$

(C) $\angle P = 40°$

(D) The measure of $\angle P$ cannot be determined

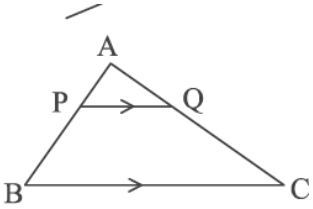




3. In Δ ABC, PQ || BC. It is given that AP = 2.4 cm, PB = 3.6 cm and BC = 5.4 cm. PQ is equal to :

(a) 2.7 cm (b) 1.8 cm

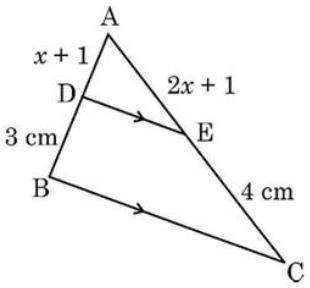
(c) 3.6 cm (d) 2.16 cm



4. In ΔABC, DE||BC. If AE = $(2x + 1)$ cm, EC = 4 cm, AD = $(x + 1)$ cm and DB = 3 cm, then value of x is

(A) 1 (B) $\frac{1}{2}$

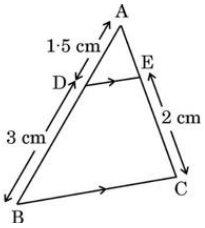
(C) -1 (D) $\frac{1}{3}$



5. In the given figure, if DE || BC, AD = 1·5 cm, DB = 3 cm and EC = 2 cm, the length of AC is :

(A) 1·5 cm (B) 3 cm

(C) 3·5 cm (D) 4·5 cm

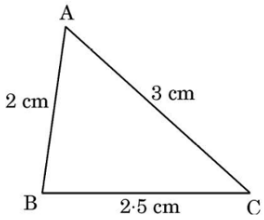


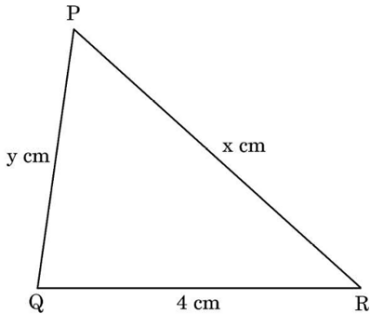
6. Which types of triangles are always similar ?

(A) Right-angled triangles
(B) Acute-angled triangles
(C) Isosceles triangles
(D) Equilateral triangles

7. What values of x and y will make Δ ABC similar to Δ QRP in the figures given below ?

(A) x = 6, y = 5
(B) x = 5, y = 6
(C) x = 6, y = 6
(D) x = 12, y = 3·2



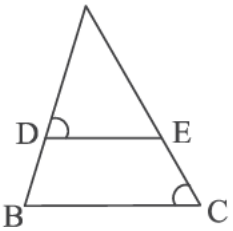


8. *Assertion (A) :* All congruent triangles are similar.
Reason (R) : In congruent triangles, the ratio of corresponding sides is 1 : 1.

9. **Assertion (A) :** ΔABC ~ ΔPQR such that ∠A = 65°, ∠C = 60°. Hence ∠Q = 55°.
Reason (R) : Sum of all angles of a triangle is 180°.

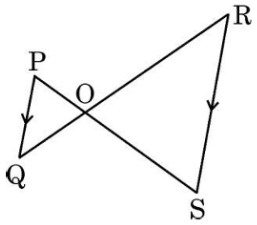
10. In a trapezium ABCD, AB||DC and its diagonals intersect at O. Prove that $\frac{OA}{OC} = \frac{OB}{OD}$.

11. In the given figure ∠ADE = ∠ACB and $\frac{AD}{DB} = \frac{AE}{EC}$. Prove that ΔABC is an isosceles triangle.

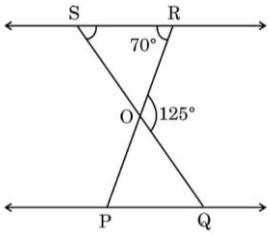


12. In a Δ ABC, P and Q are points on AB and AC respectively such that PQ || BC. Prove that the median AD, drawn from A to BC, bisects PQ.

13. In the given figure, if PQ || RS, then prove that Δ POQ ~ Δ SOR.

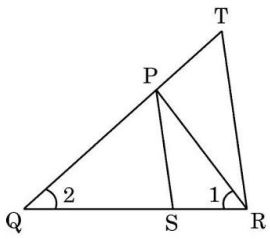


14. In the given figure, Δ OSR ~ Δ OQP, ∠ ROQ = 125° and ∠ ORS = 70°. Find the measures of ∠ OSR and ∠ OQP.

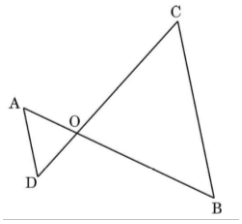


15. A vertical pole of height 10 m casts a shadow of 15 m on the ground and at the same time, a tower casts a shadow of 45 m on the ground. Find the height of the tower.

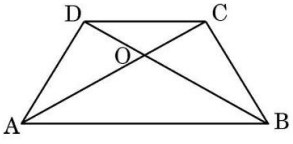
16. In the given figure, $\frac{QR}{QS} = \frac{QT}{PR}$ and ∠ 1 = ∠ 2. Prove that Δ PQS ~ Δ TQR.



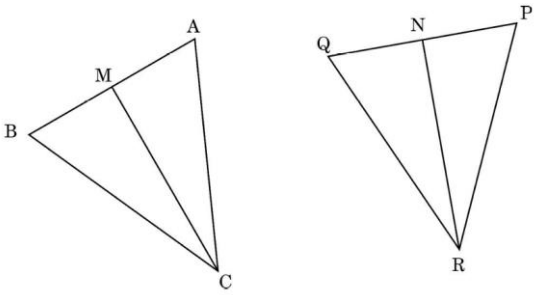
17. State the SAS criteria of similarity of two triangles. In the given figure, it is given that OA . OC = OB . OD. Use the SAS criteria to prove that AD || CB.



18. State "Basic Proportionality Theorem" and use it to prove the following :
In a quadrilateral ABCD, diagonals AC and BD intersect each other at O such that $\frac{AO}{BO} = \frac{CO}{DO}$ as shown in the given figure. Prove that ABCD is a trapezium.



19. In the given figure, CM and RN are respectively, the medians of Δ ABC and Δ PQR. If Δ ABC ~ Δ PQR, prove that :

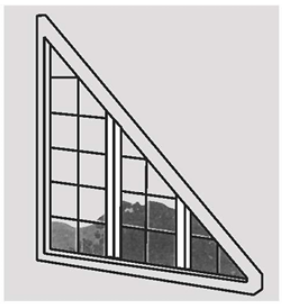


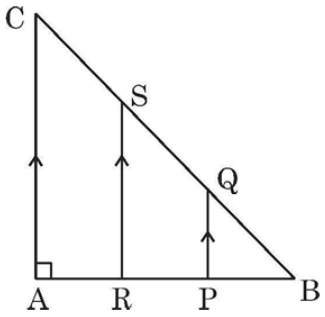
(i) $\Delta AMC \sim \Delta PNR$

(ii) $\angle BCM = \angle QRN$

(iii) $\Delta BMC \sim \Delta QNR$

20. It is given that sides AB and AC and median AD of ΔABC are respectively proportional to sides PQ and PR and median PM of another ΔPQR. Show that $\Delta ABC \sim \Delta PQR$.

21. 



A triangular window of a building is shown above. Its diagram represents a ΔABC with $\angle A = 90°$ and AB = AC. Points P and R trisect AB and PQ || RS || AC.

Based on the above, answer the following questions :

(i) Show that $\Delta BPQ \sim \Delta BAC$. **1**

(ii) Prove that $PQ = \frac{1}{3} AC$. **1**

(iii) (a) If AB = 3 m, find length BQ and BS. Verify that $BQ = \frac{1}{2} BS$. **2**