Chapter 06: Similar Triangle Test Paper 01

Time 45 min. Class 10. FM: 35

SECTION-A(1 mark Questions)

1.	If \triangle ABC \sim \triangle PQR with \angle A = 32° and \angle R = 65°, then the measure of
	\angle B is :

(a) 32° (b) 65°

(c) 83° (d) 97°

In
$$\triangle$$
 ABC and \triangle DEF, $\frac{AB}{DE} = \frac{BC}{FD}$. Which of the following makes the two triangles similar?

 $\angle A = \angle D$ (a)

(b) $\angle B = \angle D$

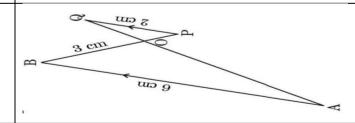
 $\angle B = \angle E$ (c)

- (d) $\angle A = \angle F$
- 3. If $\Delta PQR \sim \Delta ABC$; PQ = 6 cm, AB = 8 cm and the perimeter of ΔABC is 36 cm, then the perimeter of ΔPQR is
 - (A) 20.25 cm

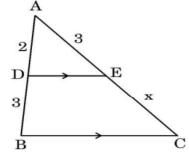
(B) 27 cm

(C) 48 cm

- (D) 64 cm
- In two triangles PQR and LMN, if $\frac{PQ}{MN} = \frac{QR}{LN} = \frac{PR}{LM}$, then : 4.
 - Δ LMN ~ Δ RPQ (a)
- Δ LMN $\sim \Delta$ PQR (b)
- \triangle RQP \sim \triangle LMN **(c)**
- \triangle QRP \sim \triangle LMN (d)
- 5. In the given figure, AB \parallel PQ. If AB = 6 cm, PQ = 2 cm and OB = 3 cm, then the length of OP is:



- (a) 9 cm
- (c) 4 cm
- (b) 3 cm
- (d) $1 \mathrm{cm}$
- 6. In the given figure, DE || BC. If AD = 2 units, DB = AE = 3 units and EC = x units, then the value of x is:



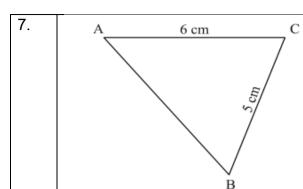
(a)

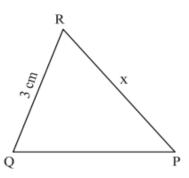
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- **(b)**
- **(c)**
- (d)

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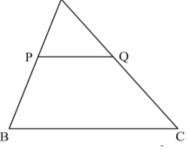


In the given figure, $\triangle ABC \sim \triangle QPR$. If AC = 6 cm, BC = 5 cm, OR = 3 cm and PR = x; then the value of x is:

- (a) 3.6 cm
- (b) 2.5 cm
- (c) 10 cm
- (d) 3.2 cm

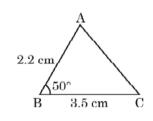
In \triangle ABC, PQ || BC. If PB = 6 cm, AP = 4 cm, AQ = 8 cm, find the length of AC.

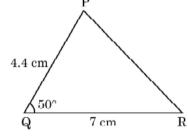
- (a) 12 cm
- (b) 20 cm
- (c) 6 cm
- (d) 14 cm



9. In the figure, the criterion of similarity by which $\triangle ABC \sim \triangle PQR$ is:

- (a) SSA (Side Side Angle) Similarity
- (b) ASA (Angle Side Angle) Similarity
- (c) SAS (Side Angle Side) Similarity
- (d) AA (Angle Angle) Similarity





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10. Δ ABC ~ Δ DEF and their perimeters are 32 cm and 24 cm respectively.

If AB = 10 cm, then DE equals:

(a) 8 cm

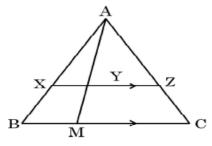
(b) 7.5 cm

(c) 15 cm

(d) $5\sqrt{3}$ cm

SECTION-B(2 marks Questions)

11. In the given figure, XZ is parallel to BC. AZ = 3 cm, ZC = 2 cm, BM = 3 cm and MC = 5 cm. Find the length of XY.

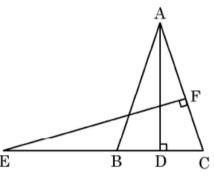


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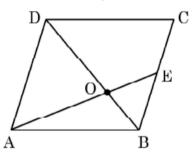
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12.	If AP and DQ are medians of triangles ABC and
	DEF respectively, where \triangle ABC \sim \triangle DEF, then prove that
	AB AP
	$\overline{DE} = \overline{DQ}$.

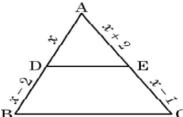
In the given figure, E is a point on the side CB produced of an isosceles triangle ABC with AB = AC. If AD \perp BC and EF \perp AC, then prove that \triangle ABD \sim \triangle ECF.



In the given figure, ABCD is a parallelogram. AE divides the line segment BD in the ratio 1:2. If BE = 1.5 cm, then find the length of BC.

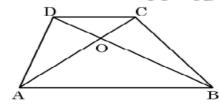


In the given figure, ABC is a triangle in which DE||BC. If AD = x, DB = x - 2, AE = x + 2 and EC = x - 1, then find the value of x.



SECTION-B (3 marks Questions)

16. Diagonals AC and BD of trapezium ABCD with AB||DC intersect each other at point O. Show that $\frac{OA}{OC} = \frac{OB}{OD}$.



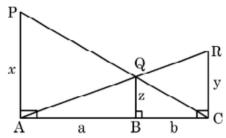
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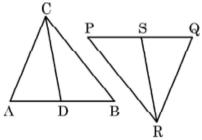
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PA, QB and RC are each perpendicular to AC. If AP = x, QB = z,

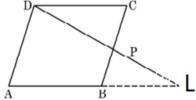
RC = y, AB = a and BC = b, then prove that $\frac{1}{x} + \frac{1}{y} = \frac{1}{z}$.



- In the given figure, CD and RS are respectively the medians of \triangle ABC and \triangle PQR. If \triangle ABC \sim \triangle PQR then prove that :
 - (i) $\triangle ADC \sim \triangle PSR$
 - (ii) $AD \times PR = AC \times PS$

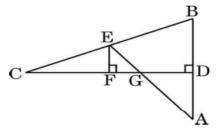


- Sides AB and AC and median AM of a ΔABC are proportional to sides DE and DF and Median DN of another ΔDEF. Show that ΔABC ~ ΔDEF.
- ABCD is a parallelogram, P is a point on side BC and DP when produced meets AB produced at L. Prove that
 - ${\rm (i)} \qquad \frac{\rm DP}{\rm PL} = \frac{\rm DC}{\rm BL} \qquad {\rm (ii)} \qquad \frac{\rm DL}{\rm DP} = \frac{\rm AL}{\rm DC}$
 - (iii) If LP : PD = 2 : 3 then find BP : BC.



SECTION-B (5 marks Questions)

In the given figure, CD is the perpendicular bisector of AB. EF is perpendicular to CD. AE intersects CD at G. Prove that $\frac{CF}{CD} = \frac{FG}{DG}$.



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22.	Sides AB and BC and median AD of a triangle ABC are respectively proportional to sides PQ and QR and median PM of Δ PQR. Show that Δ ABC \sim Δ PQR.
23.	Through the mid-point M of the side CD of a parallelogram ABCD, the line BM is drawn intersecting AC in L and AD (produced) in E. Prove that EL = 2BL.
24.	D is a point on the side BC of a triangle ABC such that $\angle ADC = \angle BAC$, prove that $CA^2 = CB.CD$ OR If AD and PM are medians of triangles ABC and PQR, respectively where $\triangle ABC \sim \triangle PQR$, prove that $\frac{AB}{PQ} = \frac{AD}{PM}$.
25.	In the given figure, $\angle ADC = \angle BCA$; prove that $\triangle ACB \sim \triangle ADC$. Hence find BD if $AC = 8$ cm and $AD = 3$ cm.
26.	If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, then prove that the other two sides are divided in the same ratio.

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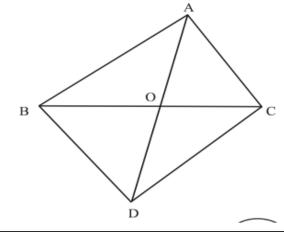
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- 27.
- (A) In a $\triangle PQR$, N is a point on PR, such that QN \perp PR. If PN × NR = QN², prove that \angle PQR = 90°.

OR

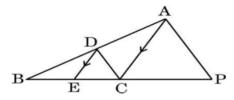
(B) In the given figure, \triangle ABC and ΔDBC are on the same base BC. If AD intersects BC at O, prove

that $\frac{\text{ar }(\Delta ABC)}{\text{ar }(\Delta DBC)} =$



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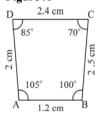
In the given figure, DE \parallel AC and $\frac{BE}{EC} = \frac{BC}{CP}$. Prove that DC \parallel AP.



29.

Observe the figures given below carefully and answer the questions:

Figure A



A (i)

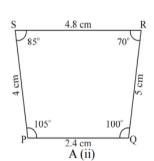
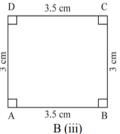


Figure B



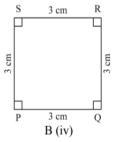
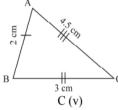


Figure C



Name the figure(s) wherein two figures are similar.

- (ii) Name the figure(s) wherein the figures are congruent.
- (iii) (a) Prove that congruent triangles are also similar but not the converse.

3 cm

C (vi)

(b) What more is least needed for two similar triangles to be congruent?

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