MATHEMATICS

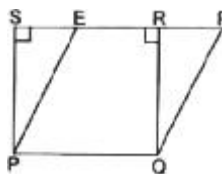| Board – CBSE	Class – 9	Topic – Area of llgm & Triangles

Multiple Choice Question Type

1. Which of the following is true for two figures having equal area?

   (i)   are always congruent

   (ii)   are never congruent

   (iii) may or may not be congruent

2. ABCD is a parallelogram and AC is drawn parallel to ED. EC is joined. Which of the following is correct?

   (i) ar ∆ADC = ar ∆AEC.

   (ii) ar ∆ADC = ar ∆EDC.

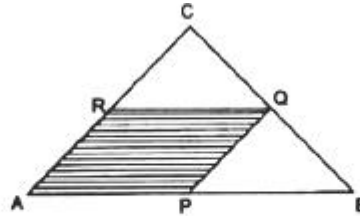   (iii) ar ∆ADC = $\frac{1}{2}$.arADCB

3. A median of a triangle divides it into two

   (i)   congruent triangles.

   (ii) triangles of equal area.

   (iii) isosceles triangles.

   (iv) right triangles

4. In the figure if parallelogram PQFE and rectangle PQRS are of equal area, then which of the following is true?

   (i) perimeter of PQRS > Perimeter of PQFE

   (ii) Perimeter of PQRS = Perimeter of PQFE

   (iii) Perimeter of PQRS < Perimeter of PQFE

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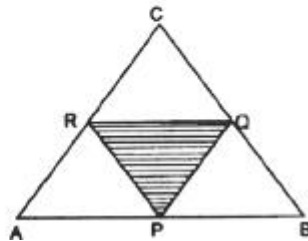An Innovative Learning Methodology by IITians.

5. In the figure P, Q and R are the mid-point of the sides AB, BC and AC respectively, which of the following is the area of APQR?

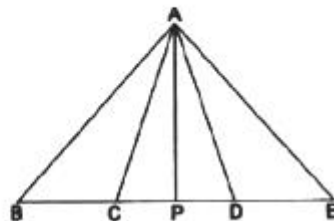(i) ar (ΔABC)   (ii) $\frac{1}{2}$ ar (ΔABC)   (iii) $\frac{1}{4}$ ar (ΔABC)   (iv) $\frac{1}{3}$ ar (ΔQPB)

6. In the following figure P, Q and R are the mid-points of AB, BC and AC respectively. Which of the following is the area of ΔPQR?

(i) $\frac{1}{2}$ ar (ΔABC)   (ii) $\frac{1}{3}$ ar (ΔABC)   (iii) $\frac{1}{4}$ ar (ΔABC)

7. In the figure, BC = CD = DE and P is the mid-point of CD. Which of the following is the area of ΔAPC?

(i) $\frac{1}{3}$ ar (ΔABC)   (ii) $\frac{1}{2}$ ar (ΔABD)   (iii) $\frac{1}{6}$ ar (ΔABC)
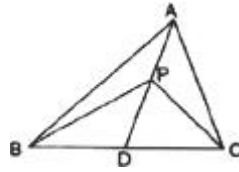

8. In the figure, AD is a median and P is a point on it. Which of the following is correct?
   (i) ar(ΔAPB) = ar(ΔBPD)

(ii) ar(ΔAPB) = ar(ΔAPC)

(iii) ar(ΔAPB) = ar(ΔPDC)
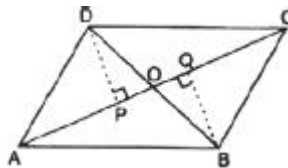

9. In the fig, area of ΔADC is equal to area of ΔABC. Which of the following is correct?

 (i) DO > OB

(ii) DO > OB

(iii) DO < OB

10. If a triangle and a parallelogram are on the same base and between same parallels, then what is the ratio of the area of the triangle to the area of parallelogram?

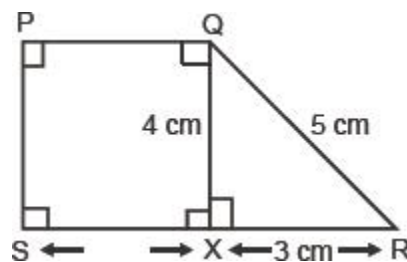(i) 1 : 2   (ii) 3 : 2   (iii) 1 : 3   (iv) 4 : 1

Answers

1.	(iii)	2.	(ii)	3.	(ii)	4.	(iii)	5.	(ii)
6.	(iii)	7.	(iii)	8.	(ii)	9.	(ii)	10.	(i)

Long Answer Type

1. AB and CD are parallel sides of trapezium ABCD. Diagonals AC and BD intersect at O. prove that ar(ΔAOD) = ar(ΔBOC).

2. If D is the mid .point of side of side BC of a ΔABC, P and Q are two points lying respectively on the sides AB and BC such that DP is parallel to QA. Prove that ar(ΔCQP) = 1/2 ar(ΔABC).

3. A rectangle is formed by joining the mid-points of the sides of a rhombus. Show that the area of rectangle is half the area of rhombus.

4. In a parallelogram ABCD, AE is perpendicular to DC and CF is perpendicular to AD. If AB = 10 cm, AE = 6 cm and CF = 8 cm, then find AD.

5. The adjacent sides of a rectangle are 16 cm and 8 cm. Find the area of the rectangle.

6. PQRS is a square. T and U are the mid-points of sides PS and QR respectively. Find the area of ΔOTS, if PQ= 8 cm, where O is the point of intersection of TU and OS.

7. If two sides of one triangle are equal to two sides of another triangle and the contained angles are supplementary, show that the two sides are equal in area.

8. In a trapezium ABCD where AB is parallel to CD, E is the mid-point of BC, prove that ΔAED = $\frac{1}{2}$trapezium ABCD.

9. The area of triangle ABC is 15 cm sq. If ΔABC and a parallelogram ABPD are on the same base and between the same parallel lines then what is the area of parallelogram ABPD.

10. The area of parallelogram PQRS is 88 cm sq. A perpendicular from S is drawn to intersect PQ at M. If SM = 8 cm, then find the length of PQ.

11. In triangle ABC, AD is a median. If the area of ΔABD is 15 cm sq. then find the ar(ΔABC).

12. ABCD is a parallelogram and BPC is a triangle with P falling on AD. If the area of parallelogram ABCD= 26 cm^2, find the area of triangle BPC.

13. PQRS is a parallelogram and PQT is a triangle with T falling on RS. If area of triangle PQT = 18 cm^2, then find the area of parallelogram PQRS.

14. ABCD is a parallelogram where E is a point on AD. Area of ΔBCE = 21 cm². If CD = 6 cm, then find the length of AF.

15. The area of ΔABC = 32 cm². AD is a median and E is the mid-point of AD. Find the area of ΔBED.

16. ABCD is a parallelogram and BC is produced to a point Q such that AD= CQ. If AQ intersects DC at P, show that area of ΔBPC= area of ΔDPQ.

17. Area of triangle ABC=24cm². F, E and D are the midpoints of sides AB, AC, BC respectively. Find the area of triangle EFD and of parallelogram BDEF.

18. Find the area of trapezium whose parallel sides 9cm and 5cm respectively and the distance between these sides is 8cm.

19. Find the area of trapezium PQRS given in the figure.

20. PQRS is a square. T and U are respectively, the mid points of PS and QR. Find the area of ΔOTS, if PQ = 8 cm, where O is the point of intersection of TU and OS.

21. Find the area of ΔABC given in the adjoining figure.

22. In the adjoining figure, the area of ΔBCE is 21 cm². If CD = 6 cm, then find the length of AF.

23. In the adjoining figure, the area of a parallelogram ABCD is 40 cm². If PQ is a median of ΔCDP then, find the area of ΔPDQ.

24. In the adjoining figure, find the area of the trapezium ABCD.

25. Find the area of the following quadrilateral.