

CHAPTER 9

AREAS OF PARALLELOGRAMS AND TRIANGLES

February 8, 2023

EXERCISE 9.1

Write the correct answer in each of the following:

1. The median of a triangle divides it into two
 - (a) triangles of equal area
 - (b) congruent triangles
 - (c) right triangles
 - (d) isosceles triangles

2. In which of the following figures (Figure (1)), you find two polygons on the same base and between the same parallels?

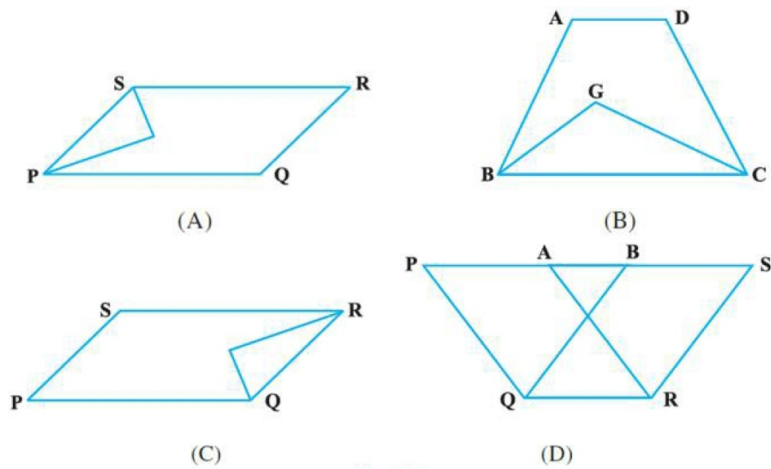


Figure 1

3. The figure obtained by joining the mid-points of the adjacent sides of a rectangle of sides 8cm and 6cm is:
 - (a) a rectangle of area $24cm^2$
 - (b) a square of area $25cm^2$
 - (c) a trapezium of area $24cm^2$
 - (d) a rhombus of area $24cm^2$

4. In Figure (2), the area of parallelogram $ABCD$ is:

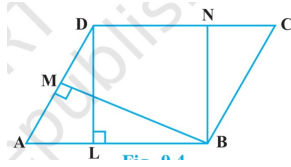


Figure 2

- (a) $AB \times BM$
- (b) $BC \times BN$
- (c) $DC \times DL$
- (d) $AD \times DL$

5. In Figure (3), if parallelogram $ABCD$ and rectangle $ABEF$ of equal area, then:

- (a) Perimeter of $ABCD$ = Perimeter of $ABEM$
- (b) Perimeter of $ABCD$ < Perimeter of $ABEM$
- (c) Perimeter of $ABCD$ > Perimeter of $ABEM$
- (d) Perimeter of $ABCD$ = $\frac{1}{2}$ (Perimeter of $ABEM$)

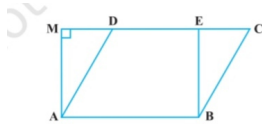


Figure 3

6. The mid-point of the sides of a triangle along with any of the vertices as the fourth point make a parallelogram of area equal to

- (a) $\frac{1}{2}ar(ABC)$
- (b) $\frac{1}{3}ar(ABC)$
- (c) $\frac{1}{4}ar(ABC)$
- (d) $ar(ABC)$

7. Two parallelograms are on equal bases and between the same parallels. The ratio of their areas is

- (a) 1 : 2
- (b) 1 : 1
- (c) 2 : 1
- (d) 3 : 1

8. $ABCD$ is a quadrilateral whose diagonal AC divides it into two parts, equal in area, then $ABCD$

- (a) is a rectangle
- (b) is always a rhombus
- (c) is a parallelogram
- (d) need not be any of (a), (b) or (c)

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

(a) $1 : 3$

(b) $1 : 2$

(c) $3 : 1$

(d) $1 : 4$

10. $ABCD$ is a trapezium with parallel sides $AB = a\text{ cm}$ and $DC = b\text{ cm}$ (Figure (??)). E and F are the mid-points of the non-parallel sides. The ratio of $\text{ar}(ABFE)$ and $\text{ar}(EFCD)$ is

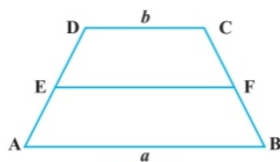


Figure 4

(a) $a : b$

(b) $(3a + b) : (a + 3b)$

(c) $(a + 3b) : (3a + b)$

(d) $(2a + b) : (3a + b)$