Geometry – Quadrilaterals

1. A Triangle and a parallelogram are on the same base and between the same parallel lines what is the area of the triangle if the area of the parallelogram is 48 sqcm?

   a) 36sq cm b) 24 sq cm c) 16 sq cm d) 20 sq cm

2. Side AB of a rectangle ABCD is divided into 4 equal parts by points x, y and z. The ratio of area of Δxyc and Area of the rectangle ABCD is

   a) 1/2 b) 1/6 c) 1/3 d) 1/8

3. ABCD is a cyclic trapezium with AB//DC and AB is the diameter of the circle. If ∠CAB = 30°, then ∠ADC is

   a) 60° b) 120° c) 150° d) 30°

4. All sides of a quadrilateral ABCD touch a circle. If AB = 6cm, BC = 7.5 cm, CD = 3cm, then DA = --

   a) 3.5 cm b) 4.5cm c) 2 cm d) 1.5 cm

5. ABCD is a quadrilateral in which diagonal BD = 64 cm, AL ⊥ BD and CM ⊥ BD, such that AL = 13.2 cm and c = 16.8 cm. The area of the quadrilateral ABCD sq cm is

   a) 480 b) 690 c) 360 d) 960

6. The length of the diagonal BD of the parallelogram ABCD is 18 cm. If P and Q are the centroids of the ΔABC and Δ ADC respectively, then the length of the line segment PQ is

   a) 4 cm b) 6 cm c) 9 cm d) 12 cm

7. ABCD is a square M is the mid-point of AB and N is the mid – point of BC. DM and AN intersect at the point O which of the following is correct?

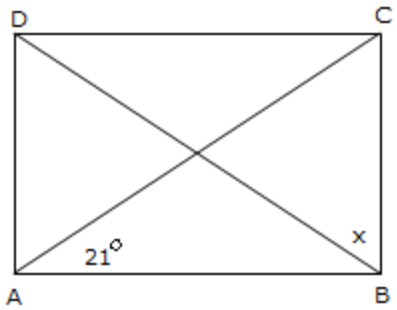
   a) OA:OM = 1:2 b) AN = MD

   c) ∠ADM= ∠AND d) ∠AMD = ∠BAN

8. Each interior angle of a regular polygon is 18° more than eight times of an exterior angle. What is the number of sides in the polygon?

   a) 20 b) 10 c) 15 d) 25

9. ABCD is a rectangle, ∠CAB=21°. If ,∠CAD=*x*, then *x* is in the given figure:



   a) 69° b) 70° c) 21° d) None of these

10. If an angle of a parallelogram is two-fourth of its adjacent angle the angles of parallelogram are-

    a) 120°, 60°, 120°, 60° b) 100°, 80°, 100°, 80°

    c) 110°, 70°, 110°, 70° d) None of these

11. If diagonals of a rhombus is 18 cm and 24 cm, then sides are-

    a) 12 cm each b) 15 cm each

    c) 13 cm each d) None of these

12. Two parallelograms stand on equal bases and between the same parallels. The ratio of their area is-

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

13. If ABCD is a rectangle. E and F are the mid points of BC and AD respectively and G is any point on EF, then Δ GAB equal-

    a) 1/2 (▭ ABCD) b) 1/3 (▭ ABCD)

    c) 1/4 (▭ ABCD) d) 1/6 (▭ ABCD)

14. A square and an equilateral triangle have equal perimeters. If the diagonal of the square is $12\sqrt{2}$, then the area of the triangle is_

    a) $24\sqrt{2}$ b) 24 c) $48\sqrt{3}$ d) $64\sqrt{3}$

15. The bisectors of any two adjacent angles of a parallelogram intersect at_

    a) 30° b) 45° c) 60° d) 90°

16. If the angles of a regular polygon is 162°, then the number of sides of the polygon is _

    a) 10 b) 20 c) 30 d) 40

17. A right angled triangle and square have the same base. If the area of the triangle is equal to that of the square, then the ratio of the height of the triangle to its base is given by _

    a) 2:1 b) 2:3 c) 3:4 d) 1:3

18. There are n corners in a closed figure. If the sum of the internal angles is 13π, then the value of n will be

    a) 6 b) 7 c) 15 d) 12

19. The length of a side of a rhombus is 5 m and one of its diagonals is of length 8 m. the length of other diagonal is _

    a) 5 m b) 7 m c) 6 m d) 8 m

20. The diagonal of a square is $4\sqrt{2}$ cm. The diagonal of another square whose area is double that of the first square is:

    a) $8\sqrt{2}$cm b) 16 cm c) $\sqrt{32}$ cm d) 8 m

21. The areas of a square and a rectangle are equal. The length of the rectangle is greater than the length of any side of the square by 5 cm and the breadth is less by 3 cm. Find the perimeter of the rectangle.

    a) 17 cm b) 26 cm c) 30 cm d) 34 cm

22. The perimeter of a rhombus is 40 cm. If one of the diagonals be 12 cm long, what is the length of the other diagonal?

    a) 12 cm b) 136 cm c) 16 cm d) 44 cm

23. The perimeter of a rhombus is 40 m and its height is 5 m. Its area is:

    a) 60 m^2 b) 50 m^2 c) 45 m^2 d) 55 m^2

24. ABCD is a trapezium, such that AB = CD and AD||BC. AD = 5cm, BC= 9cm. If area of ABCD is 35 sq.cm, then CD is:

    a) 29 cm b) 5 cm c) 6 cm d) 21 cm

25. The parallel sides of a trapezium are 24m and 52m. If its other two sides are 26m and 30m, what is the area of the trapezium?

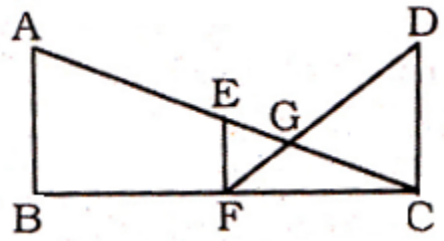
    a) 912 sq. m b) 782 sq. m c) 675 sq. m d) 812 sq. m

Answers:

1 – b	2 - d	3 - b	4 - d	5 - d	6 - b	7 - b	8 - a	9 - a	10 - a
11 – b	12 - c	13 - c	14 - d	15 - d	16 - b	17 - a	18 - c	19 - c	20 - d
21 - d	22 - c	23 - b	24 - a	25 - a					

Additional Examples

1. In the adjoining figure AB, EF and CD are parallel lines. Given that GE =5cm. GC = 10cm and DC = 18cm, then EF is equal to:



a) 11 cm b) 5 cm c) 6 cm d) 9 cm

2. Each interior angle of a regular polygon is three times its exterior angle, and then the number of sides of the regular polygon is:

a) 9 b) 8 c) 10 d) 7

3. ABCD is a cyclic quadrilateral. The side AB is extended to E in such a way that BE = BC. If ∠ADC = 70°, ∠BAD= 95°, then ∠DCE is equal to

a) 140° b) 120° c) 165° d) 110°

4. Measure of each interior angle of a regular polygon can never be:

a) 150° b) 105° c) 108° d) 144°

5. ABCD is a rhombus whose side AB = 4 cm and ∠ABC = 120°, then what can be the maximum perimeter of a semicircle on the diagonal BD in cm?

a) $4 + \sqrt{2}\pi$ b) $8 + 4\pi$ c) $2\sqrt{2} + 4\pi$ d) $\sqrt{2}\,(2\sqrt{2} + \sqrt{2}\,\pi)$

6. If the sum of the interior angles of a regular polygon be 720°, then what is the half of the area of the polygon where each side measures (in cm) 2/3rd of the number of sides of the polygon?

a) $24\sqrt{3}$ b) $16\sqrt{3}$ c) $12\sqrt{3}$ d) 12

7. A parallelogram ABCD has sides AB = 24cm and AD = 16cm. The distance between the sides AB and DC is 10cm. Find the distance between the sides AD and BC.

a) 16cm b) 18cm c) 15cm d) 26cm

8. ABCD is a rhombus. AB is produced to F and BA is produced to E such that AB = AE = BF. Then:

a) ED > CF b) ED ⊥ CF

c) $ED^2 + CF^2 = EF^2$ d) ED ∥ CF

9. A square ABCD is inscribed in a circle of unit radius. Semi-circles are described on each side as a diameter. The area of the region overlapped by the four semicircles and the circle is

a) $2 - \sqrt{3}\pi$ sq. unit b) $\sqrt{2}\pi$ sq. unit

c) $2 - \pi$ sq. unit d) $\pi - 2$ sq. unit

10. ABCD is a parallelogram in which diagonals AC and BD intersect at O. If E,F, G and H are the mid points of AO, DO, CO and BO respectively, then the ratio of the perimeter of the quadrilateral EFGH to the perimeter of parallelogram ABCD is

a) 1:4 b) 2:3 c) 1:2 d) 1:3

11. The number of sides in two regular polygons are as 5:4 and difference between their angles is 6^o. The number of sides in the polygons are

a) 12 and 15 b) 12 and 13

c) 20 and 16 d) 15 and 12

12. The area of an isosceles trapezium is 176 cm^2 and the height is $\frac{2}{11}$th of the sum of its parallel sides. If the ratio of the length of the parallel sides is 4:7, then the length of a diagonal (in cm) is

a) 28 b) $\sqrt{137}$ c) $2\sqrt{137}$ d) 24

Answers:

1 – d	2 - b	3 - a	4 - b	5 - d	6 - c	7 - c	8 - b	9 - b	10 - c
11 – d	12 - c								