Class – VIII

Mathematics

Understanding Quadrilaterals

Worksheet (BASIC) Max. marks - 60

Section – A (1 x 10 = 10)

Choose the correct option :

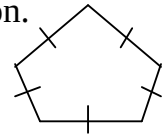
1. A simple closed curve made up of only line segments is called a ..... .

   (a) Circle (b) Polygon (c) Line segment (d) None of them

2. The sum of the measures of the exterior angles of any polygon is -

   (a) 180° (b) 360° (c) 270° (d) 540°

3. Find x in the given figure, if it is a regular pentagon.



   (a) 110° (b) 108° (c) 105° (d) 100°

4. One angle of a quadrilateral is 150°and other three angles are equal. What is the measure of each of these equal angles ?

   (a) 75° (b) 85° (c) 95° (d) 70°

5. Two adjacent sides AB and BC of a parallelogram ABCD are in the ratio 5 : 3. If the perimeter is 200 cm, what is the length of AB and BC ?

(a) 25 cm & 50 cm (b) 40 cm & 37.5 cm (c) 62.5 cm & 37.5 cm

(d) 60 cm & 62.5 cm

Fill the blanks for the following statements :

6. A parallelogram having all sides equal is called a ..... .

7. A quadrilateral having exactly one pair of parallel sides is called a ..... .

8. If the consecutive sides of a parallelogram are equal, then it is necessarily a ..... .

9. Sum of interior angles of a polygon of 10 sides is ..... .

10. The number of sides of a regular polygon whose each exterior angle is 60° is ..... .

Section – B (1 x 5 = 5)

11. Five angles of a hexagon are 150°, 95°, 80°, 135° & 125°. Find the sixth angle.

12. How many diagonals are there in a hexagon ?

13. Find the measure of each interior angle of a regular pentagon.

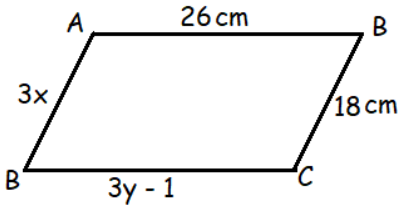
14. One angle of a parallelogram is 60°. Find its opposite angle and the adjacent angle.

15. ABCD is a trapezium with AB || DC. If $\angle A = 50°$, then find $\angle D$.

Section – C (2 x 5 = 10)

16. An exterior angle and the interior angle of a regular polygon are in the ratio 2 : 7. Find the number of sides of the polygon.

17. In parallelogram ABCD. Find x and y.



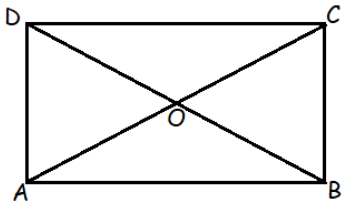
18. Find the number of sides of a regular polygon whose each exterior angle measures 60°.

19. Four angles of a quadrilateral are in the ratio 3 : 4 : 5 : 6. Find its angles.

20. ABCD is a rhombus with $\angle DAB = 56°$.Determine $\angle DBC$.

Section – D (3 x 5 = 15)

21. In the given figure, ABCD is a rectangle and its diagonals meet at O. Find x, if OA = (2x + 4) and OD = (3x + 1). Also find BD.



22. Prove that the diagonals of a rhombus bisect each other.

23. Two adjacent angles of a parallelogram are $(3x - 4)°$ & $(3x + 10)°$. Find the angles of the parallelogram.

24. Three angles of a quadrilateral are in the ratio 4 : 6 : 3. If the fourth angle is 100°, find the three angles of the quadrilateral.

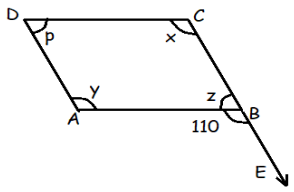
25. One side of a parallelogram is 4.8 cm and the other side is $1\frac{1}{2}$ times of this side. Find the perimeter of the parallelogram.

Section – E (4 x 5 = 20)

26. The sum of two angles of a quadrilateral is 160°. The other two angles are in the ratio 2 : 3. Find the angles.

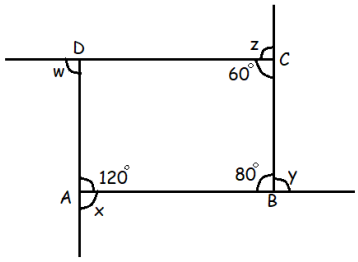
27. The measure of the diagonal of a rectangle is 5 cm. If one of its sides is 3 cm, then find its perimeter.

28. In the given figure, ABCD is a parallelogram. Find the value of x, y, z, p.



29. The diagonals of a rhombus are 6 cm and 8 cm respectively. Find the length of the sides of the rhombus. Also find its perimeter.

30. Find x + y + z + w in the given figure.



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Class – VIII

Mathematics

Understanding Quadrilaterals

Worksheet (STANDARD) Max. marks – 40

Section – A

Q . 1. Choose the correct option : (1 x 10 = 10)

(i) If three angles of a quadrilateral are each equal to 75°, thefourth angle is :-

(a) 150° (b) 135° (c) 45° (d) 75°

(ii) What is the maximum number of obtuse angles that a quadrilateral can have ?

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

(iii) ABCD is a rhombus such that $\angle ACB = 40°$. Then $\angle ADB$ is

(a) $40°$ (b) $45°$ (c) $50°$ (d) $60°$

(iv) If PQRS is a parallelogram, then $\angle P - \angle R$ is

(a) $90°$ (b) $45°$ (c) $60°$ (d) $0°$

(v) ABCD is a square, diagonal AC is joined. Then the measurement of $\angle ACB$ is

(a) $35°$ (b) $40°$ (c) $45°$ (d) $50°$

Q . 2. Complete the following statements with appropriate word(s) in the blank space.

(i) A diagonal of a parallelogram divides it into two ..... triangles.

(ii) The bisectors of any two adjacent angles of a parallelogram intersect at ..... .

(iii) An angle of a rhombus is $40°$ more than its adjacent angle. Then this angle is ..... .

(iv) The number of sides of a regular polygon, where each exterior angle has a measure of $36°$, is ..... .

(v) A rectangle whose adjacent sides are equal becomes a ..... .

Section – B (1 x 3 = 3)

Q . 3. Find the sum of all interior angles of a heptagon.

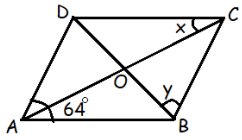
Q . 4. In a quadrilateral PQRS, $\angle P = 50°, \angle Q = 60°, \angle R = 60°$. Find $\angle S$.

Q . 5. In a parallelogram PQRS, if $\angle P = (3x - 5)°$ and $\angle Q = (2x + 15)°$, then find the value of x.

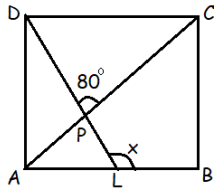
Section – C (2 x 3 = 6)

Q . 6. If one angle of a parallelogram is $24°$ less than twice the smallest angle then, find the largest angle of the parallelogram.

Q . 7. In the figure, ABCD is a rhombus. Find x & y.

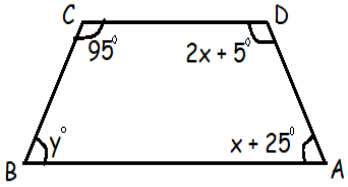


Q . 8. In the figure, ABCD is a square. If $\angle DPC = 80°$, then find x.

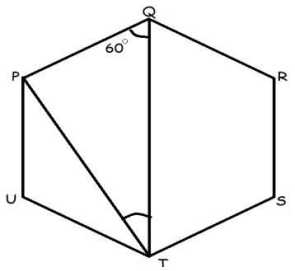


Section – D (3 x 3 = 9)

Q . 9. In the adjoining figure, ABCD is a trapezium in which $\angle A = x + 25°$, $\angle B = y, \angle C = 95°$ & $\angle D = 2x + 5°$, then find the values of x & y.

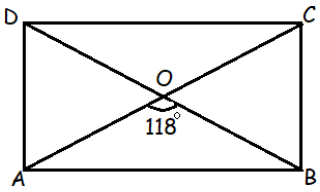


Q . 10. In the given figure, PQRSTU is a regular hexagon. If $\angle PQT = 60°$, then find $\angle PTQ$.



11. In the adjoining figure, ABCD is a rectangle and diagonals intersect at O. If $\angle AOB = 118°$, find

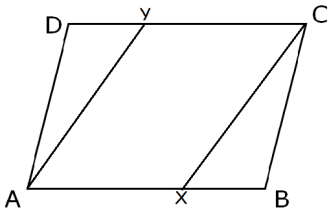
(i) $\angle ABO$ (ii) $\angle ADO$ (iii) $\angle OCB$



Section – E (4 x 3 = 12)

12. The perimeter of a parallelogram is 80 m. If the longer side is 10 m greater than the shorter side, then find the length of each side.

13. In the figure AX & CY are respectively the bisectors of the opposite angles A & C of a parallelogram ABCD. Show that AX || CY.



14. One of the diagonals of a rhombus is congruent to one of its sides. Find the angles of the rhombus.

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Class – VIII

Mathematics

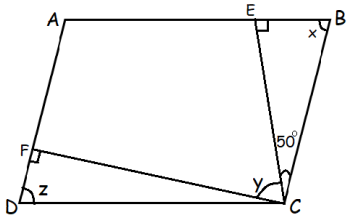
Understanding Quadrilaterals

Worksheet (Advance or HOTS)

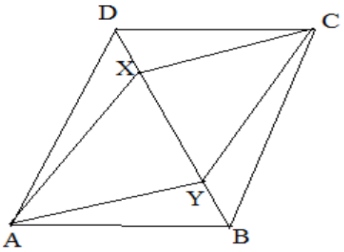
1. In a quadrilateral, CO & DO are the internal bisectors of $\angle C$ & $\angle D$ respectively. Prove that $\angle A + \angle B = 2\angle COD$.

2. The interior angle of a regular polygon is four times its exterior angle. How many sides does the polygon have ?

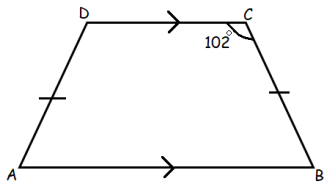
3. From the adjoining parallelogram, find the value of x, y & z.



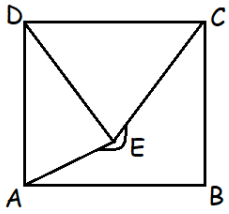
4. In the figure ABCD is a parallelogram. If X & Y are the points on the diagonal BD such that DX = BY, prove that AXCY is a parallelogram.



5. In the adjoining trapezium ABCD, $\angle C = 102°$. Find all the remaining angles of the trapezium.



6. In the figure, ABCD is a square and CDE is an equilateral triangle.
Find (i) $\angle AED$ (ii) $\angle EAB$ (iii) reflex $\angle AEC$.



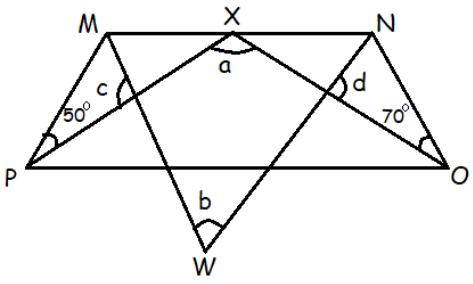
7. ABCD is a trapezium in which AB || CD & AD = BC. Show that :

(i) $\angle A = \angle B$ (ii) $\angle C = \angle D$ (iii) $\Delta ABC \cong \Delta BAD$
(iv) Diagonal AC = diagonal BD

8. In a parallelogram ABCD, the diagonals AC & BD intersect each other at O. Through O, a line is drawn to intersect AD at X and BC at Y. Show that OX = OY.

9. ABCD is a rhombus and its two diagonals intersect at O, show that $AB^2 + BC^2 + CD^2 + DA^2 = 4(AO^2 + DO^2)$.

10. The angle bisectors of $\angle M, \angle N, \angle O$ & $\angle P$ of a trapezium MNOP intersect at points W and X respectively. If $\angle MPX = 50°$ & $\angle NOX = 70°$, find the measure of the angles a, b, c & d.



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