NORTH EX PUBLIC SCHOOL (RECOGNISED)

CLASS VIII (QUADRILATERALS)

Note: Before attempting the worksheet you must check links given below which will help you in solving the sums;-

LINKS 1. https://youtu.be/1j-RFI3kAQI
2. https://youtu.be/KsaemKXm52U
3. https://youtu.be/AAnC2hscQZY
4. https://youtu.be/4Ds0Csf3shA

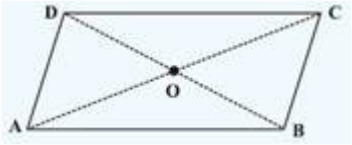
IMPORTANT POINTS.

CH : 9 QUADRILATERALS (SUMMARY)

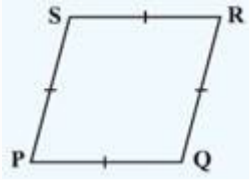
- Quadrilateral: Polygon having four sides.
- Element of quadrilateral:
  - (i) Sides: Line segments joining the points.
  - (ii) Vertices: Point of intersection of two consecutive sides.
  - (iii) Opposite sides: Two sides of a quadrilateral having no common endpoint.
  - (iv) Opposite Angles: Two angles of a quadrilateral not having a common arm.
  - (v) Diagonals: Line segment obtained by joining the opposite vertices.
  - (vi) Adjacent Angles: Two angles of a quadrilateral having a common arm.
  - (vii) Adjacent Sides: Two sides of a quadrilateral having a common endpoint.
- Convex: The measure of each angle is less than 180˚.
- Concave: The measure of at least one angle is more than 180˚.
- Diagonal: A simple closed curve made up of only line segments. A line segment connecting two non–consecutive vertices of a polygon

is called diagonal.

- Parallelogram: A quadrilateral with each pair of opposite sides parallel.
  (1) Opposite sides are equal.
  (2) Opposite angles are equal.
  (3) Diagonals bisect one another.



- Rhombus: A parallelogram with sides of equal length.
  (1) All the properties of a parallelogram.
  (2) Diagonals are perpendicular to each other.



- Rectangle: A parallelogram with a right angle.
  (1) All the properties of a parallelogram.
  (2) Each of the angles is a right angle.
  (3) Diagonals are equal.
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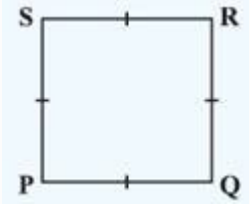
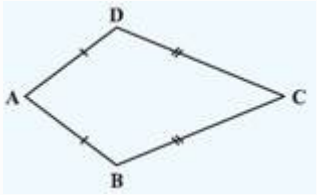
- Square: A rectangle with sides of equal length.
  (1) All the properties of a parallelogram, rhombus and a rectangle. 

- Kite: A quadrilateral with exactly two pairs of equal consecutive sides
  (1) The diagonals are perpendicular to one another
  (2) One of the diagonals bisects the other.

(3) In the figure $m\angle B = m\angle D$ but $m\angle A \neq m\angle C$.



- Trapezium: A quadrilateral having exactly one pair of parallel sides.

IMPORTANT POINTS.

1. **The sum of interior angles of a quadrilateral is 360˚.**
2. **The sum of the interior angles of a polygon with n sides is (n-2)*180˚.**
3. **Each interior angle of n sided regular polygon =** $\frac{(n-2)*180^\circ}{n}$
4. **Each exterior angle of a regular polygon of n sides = ¿)˚**
5. **Number of diagonals of polygon of n sides =** $\frac{n(n-3)}{2}$

WORKSHEET 3 (BASED ON ABOVE IMPORTANT POINTS)

1. **How many diagonals are there in a pentagon and an octagon?**
2. **What is the sum of all interior angles of a polygon of :-**
   a) **N sides**
   b) **7 sides**
   c) **10 sides**

3. **Find the number of sides of a regular polygon whose each exterior angle measure 45˚**
4. **Each interior angle of a polygon is 108˚. How many sides does it have?**
5. **Find each interior angle of a regular decagon using formula.**

WORKSHEET 4

1. **Three angles of quadrilateral are 54˚, 80˚ and 110˚ find the** measure of fourth angle.
2. **The four angles of quadrilateral are in the ratio 2:3:5:8 .Find the angles.**
3. **The measures of two angles of a quadrilateral are 115˚ and 45˚ and the other two angles are equal. Find the measure of each of the equal angle.**
4. **Two adjacent angle of a parallelogram are 2:3. Find the measure of each of its angles.**
5. **The sum of the opposite angles of a parallelogram is 130˚, find the measure of each of its angle.**

6.If one angle of a parallelogram is 75˚.find the measure of remaining angles.

7.If two angles of a parallelogram are 80˚, 100˚.find the measure of remaining angle.

8.The sides of rectangle are in ratio 5:4 and its perimeter 90 cm. Find its length and breadth.

9.A quadrilateral has three acute angle, each measuring 75˚. Find the measure of the fourth angle.

10. Three angles of quadrilateral are equal and measure of fourth angle is 120˚. Find the measure of each equal angle.

11. Two adjacent angles of parallelogram (3x-4) ˚ and (3x +16) ˚. Find the measure of x and hence find the measure of each of its angle.

12. If an angle of parallelogram is two third of its adjacent angle. Find the smallest angle of parallelogram.

13. **In a square ABCD, AB= (2x+3) cm and BC = (3x-5) cm. Find the value of x.**

14. **Find the number of sides of a regular polygon whose each exterior angle is (a) 40˚ (b) 120˚ (c) 60˚.**

15. **How many sides does a regular polygon have if each of its interior angle measures (a) 60˚ (b) 160˚?**

16. **DRAW OR PASTE CUTOUTS OF COLOURED PAPER IN YOUR NOTEBOOK OF FOLLOWING SHAPES AND WRITE THEIR PROPERTIES IN AN ATTRACTIVE WAY.**

a. Rectangle
b. Square
c. Rhombus
d. Parallelogram
e. Trapezium
f. kite

17. CROSSWORD PUZZLE

CROSSWORD PUZZLE

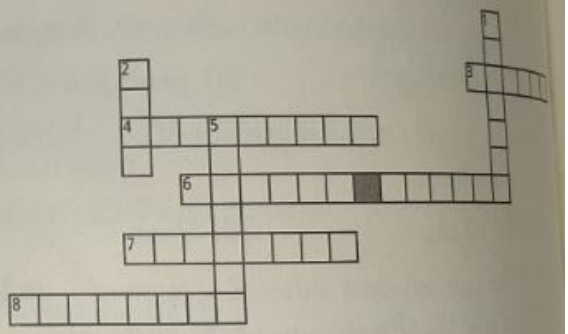
Solve the crossword puzzle.

Down

1. A parallellogram with pair of adjacent sides equal.
2. A quadrilateral with exactly two distinct consecutive pairs of equal sides.
5. A simple closed curve made up of only line segments.

Across

3. Diagonals of this polygon lie entirely inside the polygon.
4. A quadrilateral with a pair of opposite sides parallel.
6. Curves that have no end points and enclose some area.
7. The line segments joining two non-consecutive vertices of a polygon.
8. A regular polygon whose interior angle measures 108 degrees.



SOLUTION OF (worksheet 1 and 2)

Solution of worksheet 1

Class VIII

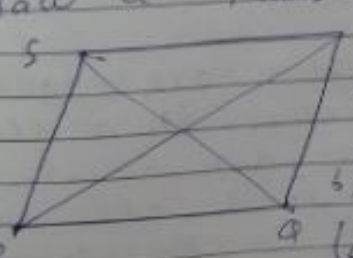
Topic :- Quadrilaterals

Worksheet :- 1

Q.1. Fill in the blanks

1. A quadrilateral has 4 sides and 4 angles.
2. A Quadrilateral has 2 diagonals
3. The sum of angles of a quadrilateral is 360.
4. A diagonal of quadrilateral is a line segment that joins two opposite vertices of the quadrilateral.
5. A quadrilateral has 4 vertices
6. opposite sides of Parallelogram/ ~~and~~ Rectangle are equal and Parallel.
7. All sides of Square/ Rhombus are equal.

Q.2 Draw a quadrilateral and show



a) opposite sides
PS = QR, PQ = RS

b) opposite angles
(∠P = ∠R) (∠Q = ∠S)

c) Adjacent sides
(PQ, QR) (QR, RS) (RS, SP)
(SP, PQ)

4) Adjacent angles

(∠P, ∠Q) (∠Q, ∠R) (∠R, ∠S) (∠S, ∠P)

5 Vertices :- P, Q, R, S

6. Diagonals

PR, QS.

Q:- 3. Properties of Rectangle, square, Kite, Trapezium are written on worksheet.

Properties of Parallelogram and Rhombus → It was mentioned in a worksheet no 2 (Q:-3)

Worksheet - 2 Class VIII

Solution of Quadrilaterals.

Q:-1. State True or false and support your answer with valid Reason.

1. All rectangles are square.

False :- because in a rectangle opposite sides are Equal. but square required all sides are Equal in length.

2. All kites are Parallelogram.

False. because in a kite

adjacent sides are equal. but in a Parallelogram opposite sides are equal. In a kite opposite sides are unequal.

3. All square are rhombuses.
True. because a square and rhombus → all sides are equal and diagonals bisect each other at right angle.

4. All rhombus are kites.
(True). because in a rhombus all sides are equal and in a kite adjacent sides are equal. In a kite one pair of opposite angles are equal. In a rhombus opposite angles are equal.

5. All squares are rectangle.
(True). because square has all ~~equal~~ sides are equal in length, and rectangle has opposite sides are equal in length. Both have 90° angle.

6. All rectangle are kites
(false) because in a rectangle opposite ~~is~~ sides are equal. but in a kite adjacent sides are equal and opposite sides are unequal.

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Date

Q:-2. Identify all the quadrilate

1. Four equal angles →
Rectangle, Square.
2. Four Equal sides →
Square and Rhombus
3. Diagonals bisect each other at right angles.
Rhombus, Square, Kite.
4. Diagonals are equal in length →
Square, Rectangle.

Q:-3. Answer of Q:-3. of worksheet → 1
Properties of Parallelogram and Rhombus.