



**BAL BHARATI PUBLIC SCHOOL, PITAMPURA, DELHI- 110034**

**SUBJECT:- MATHEMATICS CLASS:- VIII**

**CHAPTER :- 3**

**Understanding Quadrilaterals (Part 4)**

**GUIDELINES**

Dear Students

Kindly refer to the following notes/video links for the Chapter- " UNDERSTANDING QUADRILATERALS "(PART 4) and thereafter do the questions in your Maths notebook.

**NOTE-** Students can download the NCERT textbook using the following link:-

<http://ncert.nic.in/textbook/textbook.htm?hemh1=0-16>

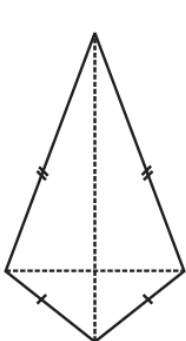
**INTRODUCTION**

**Some Special Parallelograms**

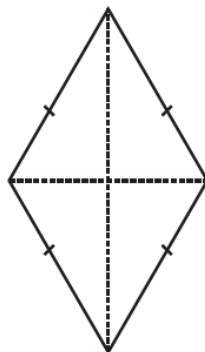
**Rhombus**

A rhombus is a Parallelogram with sides of equal length.

Rhombus is a parallelogram. So, a Rhombus has all the properties of a Parallelogram and an additional property that the diagonals of a rhombus are perpendicular bisectors of one another.



**Kite**



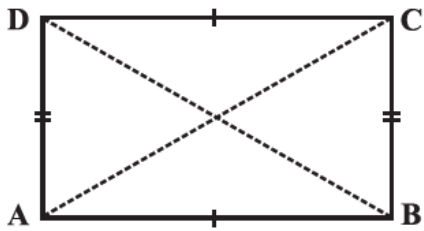
**Rhombus**

**Rectangle**

A Rectangle is a Parallelogram with equal angles. Hence, it is a Parallelogram in which every angle is a Right angle.

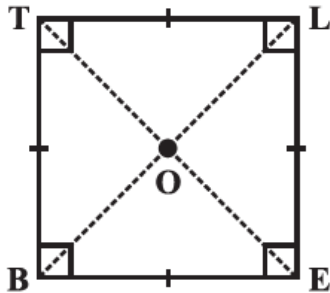
Being a Parallelogram, the Rectangle has all the properties of Parallelogram and an

additional property that is - the Rectangle has diagonals of equal length .



## Square

A Square is a parallelogram with equal sides and equal angles .This means that a Square has all the properties of a Parallelogram with an additional property that diagonals are of equal length and bisect each other at  $90^\circ$  .



In a square the diagonals-

- (i) bisect one another (square being a parallelogram)
- (ii) are of equal length (square being a rectangle) and
- (iii) are perpendicular to one another.

Hence, we get the following property.

**Property:** *The diagonals of a square are perpendicular bisectors of each other.*

## SUBTOPICS

1. Rhombus
2. Rectangle
3. Square

## KEY POINTS AND IMPORTANT LINKS FOR REFERENCE

1. Rectangle(properties)  
<https://youtu.be/VDoTLjTiNw>
2. Square (properties)  
<https://youtu.be/TVVZkLcX-0Q>
3. Rhombus (properties)

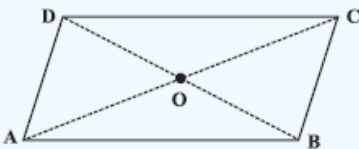
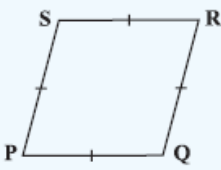

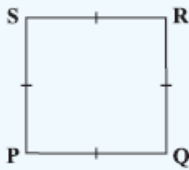
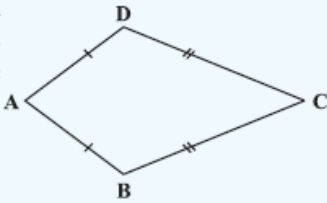
<https://youtu.be/XTRTHLvbJ3A>

4. Some questions based on all the above three.

<https://youtu.be/IBzrUHOLd0Q>

<https://youtu.be/WJ5qLCPeZyl>

### POINTS TO REMEMBER:

Quadrilateral	Properties
<p><b>Parallelogram:</b> A quadrilateral with each pair of opposite sides parallel.</p> 	<ol style="list-style-type: none"> <li>(1) Opposite sides are equal.</li> <li>(2) Opposite angles are equal.</li> <li>(3) Diagonals bisect one another.</li> </ol>
<p><b>Rhombus:</b> A parallelogram with sides of equal length.</p> 	<ol style="list-style-type: none"> <li>(1) All the properties of a parallelogram.</li> <li>(2) Diagonals are perpendicular to each other.</li> </ol>
<p><b>Rectangle:</b> A parallelogram with a right angle.</p> 	<ol style="list-style-type: none"> <li>(1) All the properties of a parallelogram.</li> <li>(2) Each of the angles is a right angle.</li> <li>(3) Diagonals are equal.</li> </ol>
<p><b>Square:</b> A rectangle with sides of equal length.</p> 	<p>All the properties of a parallelogram, rhombus and a rectangle.</p>
<p><b>Kite:</b> A quadrilateral with exactly two pairs of equal consecutive sides</p> 	<ol style="list-style-type: none"> <li>(1) The diagonals are perpendicular to one another</li> <li>(2) One of the diagonals bisects the other.</li> <li>(3) In the figure <math>m\angle B = m\angle D</math> but <math>m\angle A \neq m\angle C</math>.</li> </ol>

**ASSIGNMENT-**

**A) From NCERT textbook, the following questions are to be done in Maths notebook-**

**Exercise 3.4 Q1 , Q2 , Q3 , Q4 , Q5**

**B) Online Practice assignment on understanding quadrilateral (only to be practised online)**

1. [https://www.khanacademy.org/math/basic-geo/basic-geometry-shapes/basic-geo-quadrilaterals/e/quadrilateral\\_types](https://www.khanacademy.org/math/basic-geo/basic-geometry-shapes/basic-geo-quadrilaterals/e/quadrilateral_types)

2. <https://www.khanacademy.org/math/basic-geo/basic-geometry-shapes/basic-geo-quadrilaterals/e/categorize-quadrilaterals>

**C) Objective type questions (to be done in practice copy)-**

**1. Which of the following is not a quadrilateral?**

- A. Square
- B. Rectangle
- C. Triangle
- D. Parallelogram

**2. Which of the following quadrilaterals have two pairs of adjacent sides equal and its diagonals intersect at 90 degrees?**

- A. Square
- B. Kite
- C. Rhombus
- D. Rectangle

**3. Which one of the following is a regular quadrilateral?**

- A. Square
- B. Trapezium
- C. Kite
- D. Rectangle

**4. If AB and CD are two parallel sides of a parallelogram, then:**

- A.  $AB > CD$
- B.  $AB < CD$
- C.  $AB = CD$
- D. None of the above

**5. The perimeter of a parallelogram whose adjacent sides have lengths equal to 12 cm and 7cm is:**

- A. 21cm
- B. 42 cm
- C. 19 cm
- D. 38 cm

**6. If  $\angle A$  and  $\angle C$  are two opposite angles of a parallelogram, then:**

- A.  $\angle A > \angle C$
- B.  $\angle A = \angle C$
- C.  $\angle A < \angle C$
- D. None of the above

**7.  $\angle A$  and  $\angle B$  are two adjacent angles of a parallelogram. If  $\angle A = 70^\circ$ , then  $\angle B = ?$**

- A.  $70^\circ$
- B.  $90^\circ$
- C.  $110^\circ$
- D.  $180^\circ$

**8. ABCD is a rectangle and AC & BD are its diagonals. If AC = 10cm, then BD is=?**

- A. 10 cm
- B. 5 cm
- C. 15 cm
- D. 20 cm

**9. Each of the angles of a square is:**

- A. Acute angle
- B. Right angle
- C. Obtuse angle
- D. 180 degrees

**10. The quadrilateral whose diagonals are perpendicular to each other is:**

- A. Parallelogram
- B. Rectangle

C. Kite

D. Rhombus

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