



BAL BHARATI PUBLIC SCHOOL, PITAMPURA, DELHI-110034

SUBJECT:- MATHEMATICS CLASS:- VIII

CHAPTER:-3 Understanding Quadrilaterals (Part 3)

GUIDELINES

Dear Students

Kindly refer to the following notes/video links for the Chapter- "UNDERSTANDING QUADRILATERALS" (PART 3) and thereafter do the questions in your Mathematics notebook.

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

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

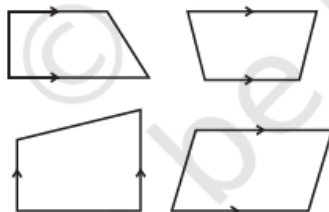
INTRODUCTION

Kinds of Quadrilaterals

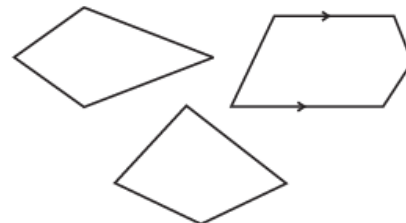
Based on the nature of the sides or angles of a quadrilateral, it gets special names.

Trapezium

Trapezium is a quadrilateral with a pair of parallel sides.



These are trapeziums

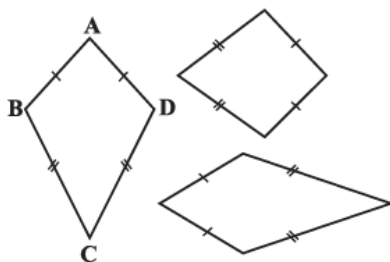


These are not trapeziums

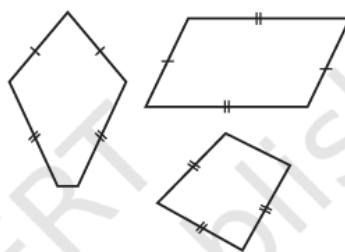
Study the above figures and discuss with your friends why some of them are trapeziums while some are not. (**Note:** *The arrow marks indicate parallel lines*).

Kite

Kite is a special type of a quadrilateral. The sides with the same markings in each figure are equal. For example $AB = AD$ and $BC = CD$.



These are kites



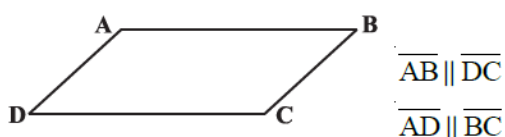
These are not kites

Study these figures and try to describe what a kite is. Observe that

- (i) A kite has 4 sides (It is a quadrilateral).
- (ii) There are exactly two **distinct consecutive pairs** of sides of equal length.

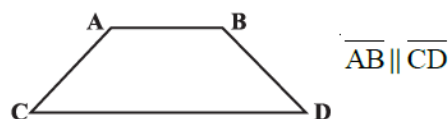
Parallelogram

A parallelogram is a quadrilateral. As the name suggests, it has something to do with parallel lines.

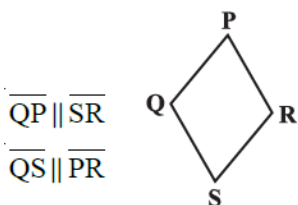


$$\overline{AB} \parallel \overline{DC}$$

$$\overline{AD} \parallel \overline{BC}$$

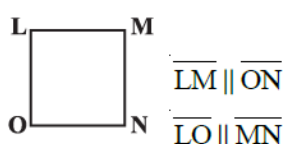


$$\overline{AB} \parallel \overline{CD}$$



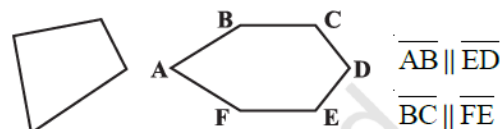
$$\overline{QP} \parallel \overline{SR}$$

$$\overline{QS} \parallel \overline{PR}$$



$$\overline{LM} \parallel \overline{ON}$$

$$\overline{LO} \parallel \overline{MN}$$



$$\overline{AB} \parallel \overline{ED}$$

$$\overline{BC} \parallel \overline{FE}$$

These are parallelograms

These are not parallelograms

SUBTOPICS

1. Kinds of quadrilateral.
2. Properties of a Parallelogram.
3. Questions based on properties of a Parallelogram.

KEY POINTS AND IMPORTANT LINKS FOR REFERENCE

1. Kinds of quadrilaterals

<https://youtu.be/web0rwnzYTU>

2. Properties of a parallelogram

<https://youtu.be/AplD3wpEYCY>

3. Questions based on properties of a parallelogram

<https://youtu.be/RHTypZ5nmZs>

<https://youtu.be/pH2B27CcMf0>

POINTS TO REMEMBER:

1. A quadrilateral, whose one pair of opposite sides is parallel is called a trapezium.

2. If non parallel sides of a trapezium are equal, it is called isosceles trapezium.

3. A parallelogram is a quadrilateral whose both pair of opposite sides are parallel.

4. Properties of Parallelogram-

(i) opposite sides are equal.

(ii) opposite angles are equal.

(iii) the diagonals bisect each other at the point of their intersection.

(iv) two adjacent angles are supplementary.

ASSIGNMENTS

A) From NCERT textbook the following questions are to be done in Mathematics notebook-

Exercise 3.3 Q2 ii) iii) v) ; Q5 ; Q7 ; Q8 i) ii) ; Q9 ; Q10 ; Q12

B) Online Practice assignment on understanding quadrilateral (only to practice online)

1. <https://www.khanacademy.org/math/in-in-class-8th-math-cbse/xa9e4cdc50bd97244:in-in-8th-quadrilaterals/xa9e4cdc50bd97244:in-in-8th-quad-types/e/categorize-quadrilaterals?modal=1>
2. <https://www.khanacademy.org/math/in-in-class-8th-math-cbse/xa9e4cdc50bd97244:in-in-8th-qvccuadrilaterals/xa9e4cdc50bd97244:in-in-8th-quad-proofs-angles/e/regular-polygons-advanced-8th?modal=1>
3. <https://www.khanacademy.org/math/in-in-class-8th-math-cbse/xa9e4cdc50bd97244:in-in-8th-quadrilaterals/xa9e4cdc50bd97244:in-in-8th-quad-proofs-angles/e/diagonal-properties-of-quadrilaterals-8th?modal=1>

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

1. Two adjacent angles of a parallelogram are $(2m + 25)^\circ$ and $(3m - 5)^\circ$. The value of m is

- (a) 28 (b) 32 (c) 36 (d) 42

2.If ABCD is a parallelogram, then the difference between angle A and angle C is _____.

3. Every parallelogram is a trapezium. True or False

4.Two adjacent angles of a parallelogram are in the ratio 4:5. The measure of the smallest angle is _____.

5.Which of the following is a property of a parallelogram?

- (a) Both pairs of opposite sides are equal.
- (b) The diagonals bisect each other at right angles.
- (c) The diagonals are perpendicular to each other.
- (d) All angles are equal.

6.. What is the maximum number of obtuse angles that a quadrilateral can have ?

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

7. One of the angle of a parallelogram is twenty four degree less than double the smallest angle. The bigger angle of the parallelogram is

- (a) 68° (b) 102° (c) 112° (d) 176°
