

CHAPTER-8

Quadrilaterals

Task-1: Observe and Answer

Topic	Quadrilaterals
Task	Observe and Answer
Nature of Task	Pre-content
Learning Objective	To recall and review the knowledge of various types of quadrilaterals.
Content coverage	Classification of quadrilaterals
Execution of Task	Worksheet can be distributed to the class. Students can be given 15 minutes time to complete the task. Afterwards all questions can be discussed in class.
Criteria of assessment	No assessment is required here. Worksheet can be used to test the previous knowledge and for diagnostic purpose.

Suggestive questions for Worksheet-1

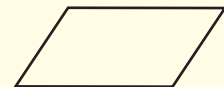
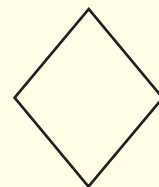
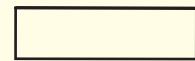
Q.1. Match the following:
Parallelogram

Trapezium

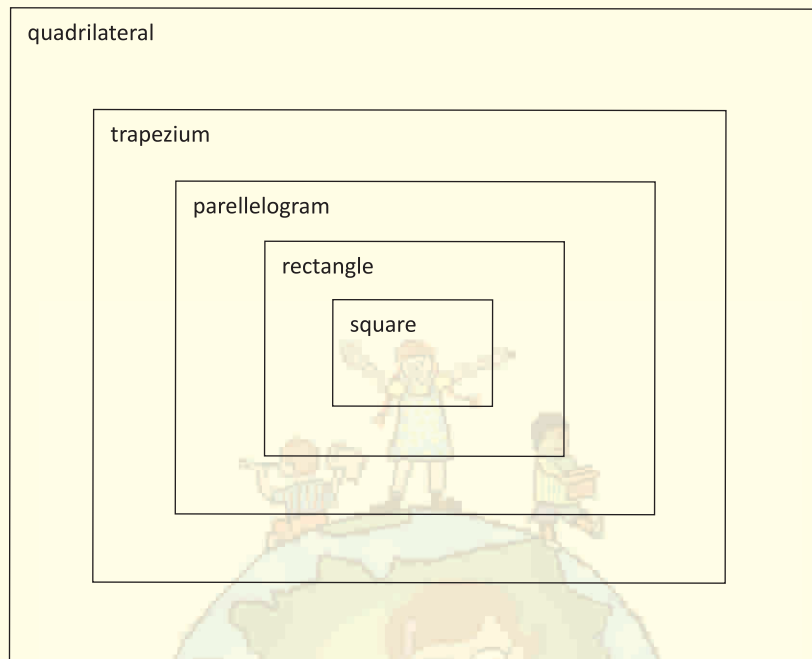
Square

Rectangle

Rhombus

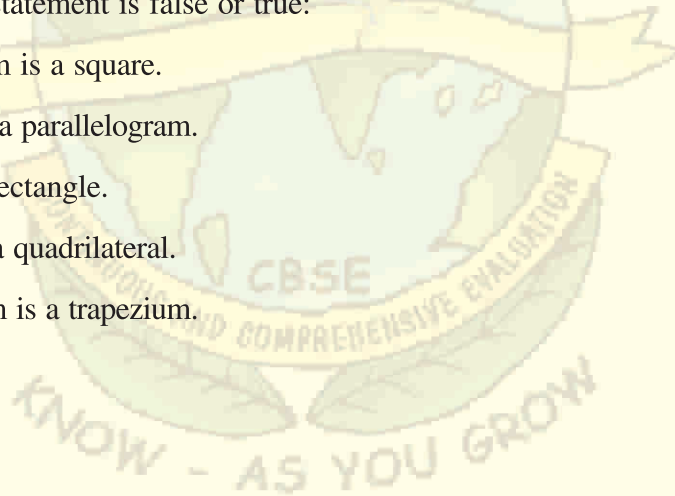


Q.2. Observe the pattern given below:



State whether the given statement is false or true:

1. Every parallelogram is a square.
2. Every trapezium is a parallelogram.
3. Every square is a rectangle.
4. Every rectangle is a quadrilateral.
5. Every parallelogram is a trapezium.



Task-2: Hands on Activity

Topic	Quadrilaterals
Nature of task	Content oriented
Content coverage	Angle sum property of quadrilateral
Learning Objective	To explore that sum of interior angles of a quadrilateral is 360 degrees.
Execution of task	Cut-outs of various type of quadrilaterals can be distributed to students along with instruction sheet.
Duration	1 period
Criteria for assessment	Assessment can be done according to the following parameters: Class ethics Observation Performance of activity independently Response on follow up sheet

Instruction Sheet

Objective: To explore the sum of interior angles of quadrilateral.

Material Required: Drawing sheet, scale, protractor, scissors, cut-outs of quadrilaterals.

Instructions:

1. Collect any cut out of quadrilateral from teacher.
2. Cut the quadrilateral in four pieces so that each piece has one vertex angle.
3. Arrange the angles in such a manner that can help to guess the sum of all angles of quadrilateral without measuring them.
4. Verify the result by drawing four types of quadrilaterals on prescribed space in response sheet, measuring them and completing the table in response sheet.



RESPONSE SHEET

Date

Name:

Class:

- Trace the quadrilateral collected by you on the space given below:



- Paste the four cut outs of quadrilateral showing the sum of all four angles without the need of measuring them.



- Draw the four different type of quadrilaterals in space prescribed below and complete the following table:



Name of quadrilateral	Angle 1	Angle2	Angle3	Angle4	Sum of all angles
Trapezium					
Rectangle					
Parallelogram					
Rhombus					

CONCLUSION:**Task-3: Worksheet**

Topic	Quadrilaterals
Nature of task	Content oriented
Content coverage	Properties of quadrilaterals.
Learning Objective	To understand the properties of all types of quadrilaterals with reference to its sides and angles.
Execution of task	Worksheet can be distributed to the students with 25 minutes of time to complete it. Later on teacher can discuss all responses and students can do self evaluation.
Duration	1 Period
Criteria for assessment	1mark for correct answer and no marks for incorrect answer.
Follow up	Quiz



Worksheet

To Complete the grid given below:

Property	Square	Rhombus	Rectangle	Trapezium	Parllelogram
Opposite sides are equal	yes	yes	yes	No	No
Opposite sides are parallel					
Adjacent sides are equal					
All angles are of 90°					
Diagonals bisect each other					
Diagonals bisect at 90°					
Opposite angles are equal					
Diagonals divide it into two congruent triangles					
Diagonals are equal in length					



Task-4	Quiz										
Nature of task	Post-Content oriented										
Content coverage	Properties of quadrilaterals.										
Learning Objective	To review and revise all concepts learnt about quadrilaterals.										
Execution of task	<p>Class can be divided into 4 groups as Team A, B, C, D.</p> <p>There will be two rounds viz. Rapid fire round and problem solving round.</p> <p>In rapid fire round each team would be given one minute to answer. They can answer as many questions as possible.</p> <p>Each correct answer will be awarded one point.</p> <p>In problem solving round the entire team will work together to solve questions in prescribed time. There will be three questions for each team.</p> <p>Each correct answer will be awarded 2 points.</p>										
Duration	1 Period										
Criteria for assessment	<p>As per rules of quiz.</p> <p>Score board</p> <table border="1"> <thead> <tr> <th>ROUND</th> <th>TEAM A</th> <th>TEAM B</th> <th>TEAM C</th> <th>TEAM D</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	ROUND	TEAM A	TEAM B	TEAM C	TEAM D					
ROUND	TEAM A	TEAM B	TEAM C	TEAM D							

Suggested questions for RAPID FIRE ROUND.

- How many angles of a parallelogram are congruent?
- Name the quadrilateral with two pairs of equal adjacent sides.
- Name a quadrilateral with only one pair of parallel sides.
- Name a parallelogram where diagonals bisect each other at 90° .

True or false:

- A parallelogram is a trapezium.
- Rectangle is not a parallelogram.
- All squares are special case of rectangle.
- Diagonals of rhombus are equal.



Suggested questions for Problem solving round

1. If the diagonals of a parallelogram are equal then show that it is a rectangle.
2. ABCD is a quadrilateral. P,Q,R,S are midpoints of the sides AB, BC, CD and DA respectively. Show that PQRS is a parallelogram.
3. Show that diagonals of a rhombus are perpendicular to each other.

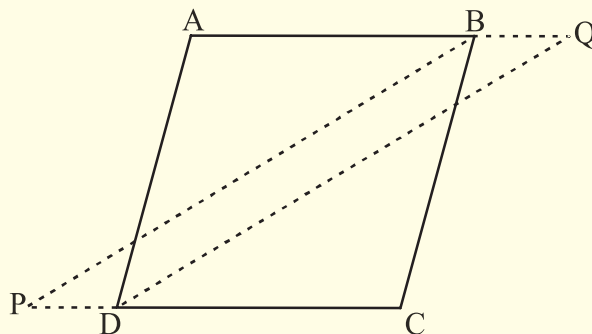
Task-5: Home Assignment

Topic	Quadrilaterals
Nature of task	Post-content
Content coverage	Complete Chapter
Learning Objective	To apply the knowledge attained about the quadrilaterals in solving the problems.
Execution of task	For extra practise of content taught, home assignment can be given after the completion of Chapter.
Duration	2 to 3 days
Criteria for assessment	Follow CW / HW / assignment rubric.
Follow up	Class discussion. Answer to the questions may be discussed in class room and individual queries may be solved.

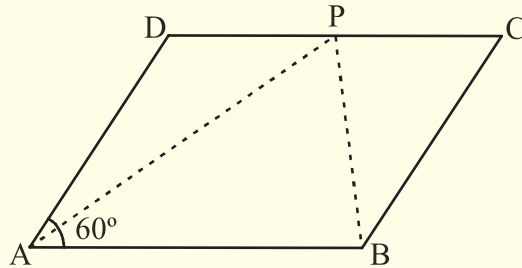
Home Assignment

1. In a quadrilateral ABCD, AO & BO are the bisectors of $\angle A$ and $\angle B$ respectively. Prove that $\angle AOB = \frac{1}{2} (\angle C + \angle D)$
2. In figure, bisectors of $\angle B$ and $\angle D$ of quadrilateral ABCD meets CD and AB, produced at P and Q respectively. Prove that :

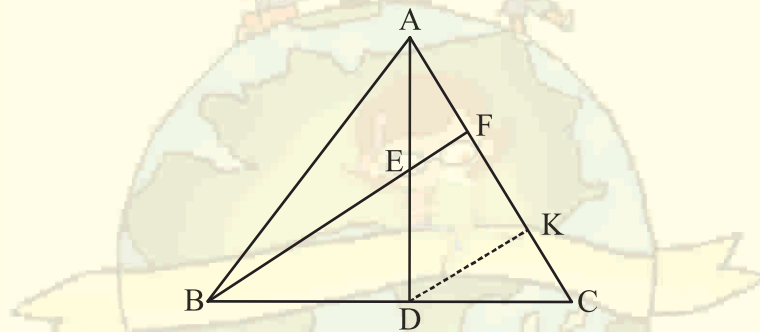
$$\angle P + \angle Q = \frac{1}{2} (\angle ABC + \angle ADC)$$



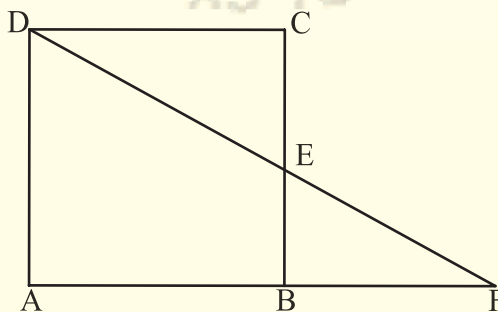
3. In a parallelogram, the bisectors of any two consecutive angles intersect at right angle. Prove it.
4. In figure, ABCD is a parallelogram and $\angle DAB = 60^\circ$. If the bisector AP and BP of angles A and B respectively meet P on CD. Prove that P is the mid point of CD.



5. In $\triangle ABC$, AD is the Median through A and E is the mid point of AD. BE produced meets AC in F such that $BF \parallel DK$. Prove that $AF = \frac{1}{3} AC$.



6. $\triangle ABC$ is right angle at B; and P is the mid point of AC and Q is any point on AB. Prove that
 (i) $PQ \perp AB$ (ii) Q is the mid point of AB (iii) $PA = \frac{1}{2} AC$
7. In angles bisectors of a parallelogram forms a rectangle.
8. In the given figure, ABCD is a parallelogram and E is the mid point of side BC, DE and AB when produced meet at F. Prove that $AF = 2AB$.



9. ABCD is a square E,F,G,H are points on AB, BC, CD and DA respectively such that $AE = BF = CG = DH$. Prove that EFGH is a square.

Task-6: MCQ Worksheet

Topic	Quadrilaterals
Nature of task	Post-content
Content coverage	Complete Chapter
Learning Objective	To apply the knowledge attained about the quadrilaterals in solving the problems.
Execution of task	Teacher may give printed worksheet to the students
Duration	1 period
Criteria for assessment	<ul style="list-style-type: none"> For each correct answer 1 mark may be allotted. In case MCQ is used as practise worksheet them, it is not necessary to assign marks.
Follow up	Classroom discussion. Answers to the questions and common errors may be discussed in the class.

MCQ Worksheet

- Given four points A, B, C, D such that three points A, B, C are collinear. By joining these points in order, we get

A. a straight line B. a triangle C. a quadrilateral
- In quadrilateral ABCD, $AB = BC$ and $CD = DA$, then the quadrilateral is a

A. Parallelogram B. Rhombus C. Kite D. Trapezium
- Given a triangular prism, then what can we conclude about the lateral faces.

A. faces are rectangle B. faces are parallelogram
 C. faces are trapeziums D. square
- The bisectors of the angles of parallelogram enclose a

A. parallelogram B. rhombus C. rectangle D. square



5. Which of the following quadrilateral a rhombus ?
- A. Diagonals bisect each other B. All four sides are equal
C. Diagonals bisect opposite angles D. One angle between the diagonals is 60° .
6. Consecutive angles of parallelogram are
- A. equal B. supplementary
C. complementary D. none of these
7. Given a rectangle ABCD and P, Q, R, S mid points of AB, BC, CD and DA respectively. Length of dragnal of rectangle is 8 cm the quadrilateral PQRS is
- A. parallelogram with adjacent sides 4 cm
B. rectangle with adjacent sides 4 cm and
C. rhombus with side 4 cm
D. square with side 4 cm
8. In parallelogram ABCD, bisectors of angles A and B intersect each other at O. The value of $\angle AOB$ is:
- A. 30° B. 60°
C. 90° D. 120°

