Maple Online Classes
A-25 DLF Loni Ghaziabad UP 201301

TEST PAPER: UNDERSTANDING QUADRILATERALS
Class 08 - Mathematics

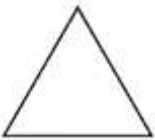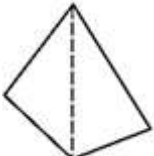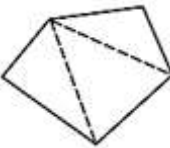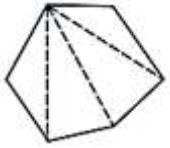**Time Allowed: 3 hours and 20 minutes**   **Maximum Marks: 100**

General Instructions:

All the questions are compulsory.

- There are 4 Sections of Questions as A, B, C and D.
- Section A has 10 Questions of 1 mark each.
- Section B has 15 Questions of 2 marks each.
- Section C has 10 Questions of 3 marks each.
- Section D has 5 Questions of 6 marks.
- There are total 40 Questions in the Question paper.
- **<u>Note: You have given 20 minutes extra to read and understand the questions in question paper. After the 20 minutes you are allowed to start writing on the answer sheet.</u>**
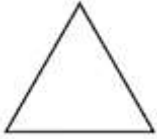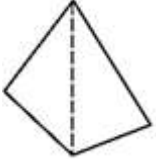
Section A

1. Examine the table. (Each figure is divided into triangles and the sum of the angles deduced   **[1]**
   from that.)

Figure				
Side	3	4	5	6

Angle sum	180°	$2 \times 180°$ $= (4-2)$ $\times 180°$	$3 \times 180°$ $= (5-2)$ $\times 180°$	$4 \times 180°$ $= (6-2)$ $\times 180°$

What can you say about the angle sum of a convex polygon with 8 number of sides?

2.   Examine the table. (Each figure is divided into triangles and the sum of the angles deduced from that.)   **[1]**
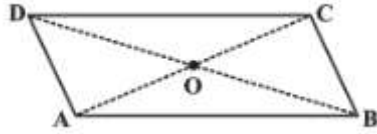
Figure				
Side	3	4	5	6
Angle sum	180°	$2 \times 180°$ $= (4-2)$ $\times 180°$	$3 \times 180°$ $= (5-2)$ $\times 180°$	$4 \times 180°$ $= (6-2)$ $\times 180°$

What can you say about the angle sum of a convex polygon with 7 number of sides?

3.   How many diagonals are there in a triangle?   **[1]**

4.   How many diagonals are there in a regular hexagon?   **[1]**

5.   How many diagonals are there in a convex quadrilateral?   **[1]**

6.   What is a regular polygon? State the name of a regular polygon of 6 sides.   **[1]**

7.   Fill in the blanks: **[1]**

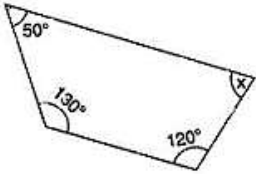Given a parallelogram ABCD. Complete the statement along with the definition or property used.

∠DCB = _____
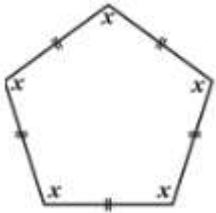

8. Can a quadrilateral ABCD be a parallelogram, if $\angle A = 70°$ and $\angle C = 65°$? **[1]**

9. Explain why a rectangle is a convex quadrilateral. **[1]**

10. Name the quadrilaterals whose diagonals bisect each other. **[1]**

Section B

11. Find the angle measure x in this figure. **[2]**
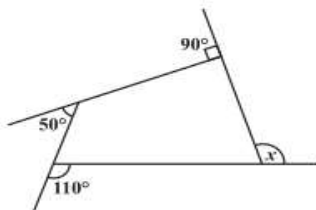

12. Find the angle measure x in the figure. **[2]**

13. What is the sum of the measures of the angles of a convex quadrilateral? Will this property hold if the quadrilateral is not convex?
(Make a non-convex quadrilateral and try!) **[2]**

14. Is it possible to have a regular polygon with measure of each exterior angle as 22°? **[2]**

15. Can 22° be an interior angle of a regular polygon? Why? **[2]**

16. What is the minimum interior angle possible for a regular polygon? Why? **[2]**

17. Draw a rough figure of a quadrilateral that is not a parallelogram but has exactly two opposite angles of equal measure. **[2]**

18. Two adjacent angles of a parallelogram have equal measure. Find the measure of each of the angles of the parallelogram. **[2]**

19. Explain how a square is a quadrilateral. **[2]**

20. Explain how a square is a parallelogram? **[2]**

21. Explain how a square is a rhombus. **[2]**

22. Explain how a square is a rectangle. **[2]**

23. Find the number of sides in a regular polygon when the measure of each exterior angle is 45°. **[2]**
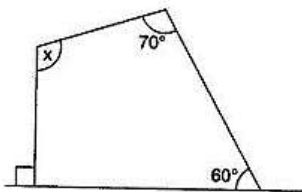
24. Find the measure of angle x in figure. **[2]**

25.   In a parallelogram RING (figure), if m∠$R = 70°$, find all the other angles.   **[2]**
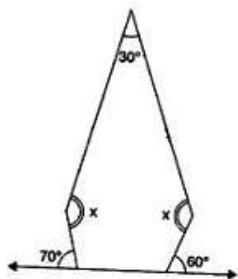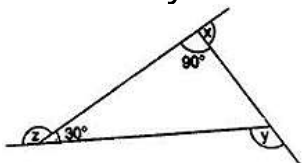

Section C

26.   Find the angle measure x in the below figure.   **[3]**

27.   Find the ∠ measure x in the below figure.   **[3]**

28.   Find x + y + z   **[3]**

29.   Find x in figure: **[3]**
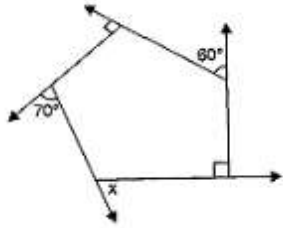

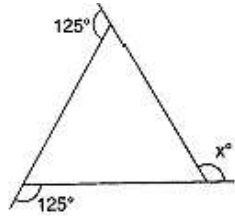30.   Find x in the figures.   **[3]**
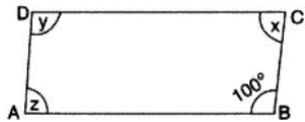

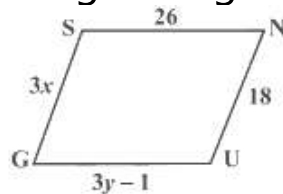31.   Find the measure of each exterior angle of a regular polygon of 15 sides.   **[3]**

32.   Consider the parallelogram. Find the degree values of the unknowns x, y, z   **[3]**
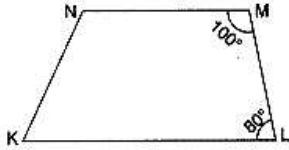

33.   The given figure GUNS is a parallelogram. Find x and y (Lengths are in cm).   **[3]**
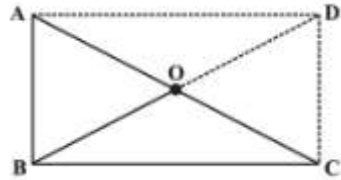
34. Explain how this figure is a trapezium. Which of its two sides are parallel? **[3]**
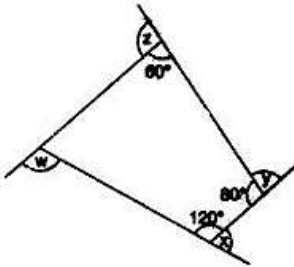

35. ABC is a right-angled triangle and O is the mid point of the side opposite to the right angle. **[3]** Explain why O is equidistant from A, B and C. (The dotted lines are drawn additionally to help you)
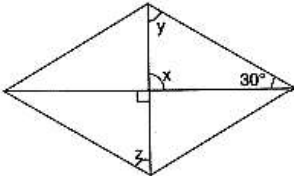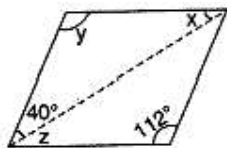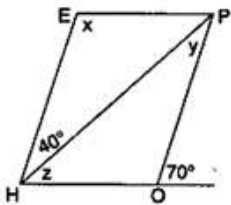

Section D

36. Find x + y + z + w. **[6]**

37. Consider the parallelogram. Find the degree values of the unknowns x, y, z. **[6]**

38. Consider the parallelogram. Find the degree values of the unknowns x, y, z.   **[6]**

39. The adjacent figure HOPE is a parallelogram. Find the angle measures x, y and z. State the   **[6]**
     properties you use to find them.

40. RENT is a rectangle. Its diagonals meet at O. Find x, if OR = 2x + 4 and OT = 3x + 1.   **[6]**