

INTERNATIONAL INDIAN SCHOOL BURAIDAH

Worksheet For The Academic Year 2025-26

CLASS: IX SUBJECT: Mathematics DATE: 22/09/2025

LESSON-8 Quadrilaterals

- 1) Prove that “ A diagonal of a parallelogram divides it into two congruent triangles”.
- 2) The angles of a quadrilateral are $4x, 7x, 15x$ and $10x$. Find the smallest and the largest angles of the quadrilateral.
- 3) If the angles of a quadrilateral are in the ratio $1: 2: 3: 4$, find the measures of all the angles of the quadrilateral.
- 4) Two opposite angles of a parallelogram are $(3x - 2)$ and $(63 - 2x)$, find the angles of the parallelogram.
- 5) In quadrilateral ABCD, $AB = CD$ and AC bisects $\angle A$, show that $\triangle ABC$ is congruent to $\triangle ADC$.
- 6) $\triangle ABC$ is an equilateral triangle with D,E,F as the midpoints of BC,CA,AB respectively. Prove that $\triangle DEF$ is also equilateral.
- 7) ABCD is a rhombus. Show that the diagonal AC bisects $\angle A$ as well as $\angle C$.
- 8) Prove that the diagonals of a rectangle are equal in length.
- 9) PQRS is a parallelogram with PL and RM perpendiculars drawn from the vertices P and R of the parallelogram on diagonal SQ. Show that
 - (i) $\triangle PQL$ is congruent to $\triangle RMS$ (ii) $PL = RM$
- 10) Show that the diagonals of a rhombus are perpendicular to each other.
- 11) State Midpoint Theorem and also state its converse.
- 12) In trapezium ABCD , AB is parallel to CD and $\angle A = 35^\circ$, $\angle B = 75^\circ$. Find $\angle C$ and $\angle D$.
- 13) Prove that the diagonals of a rectangle are equal in length.
- 14) Prove that the diagonals of a square are equal and perpendicular to each other.
- 15) $\triangle ABC$ is right angled at C. A line through the midpoint M of hypotenuse AB and parallel to BC intersect AC at D. Show that
 - (i) D is the midpoint of AC (ii) $MD \perp AC$.
- 16) Prove that the quadrilateral formed by joining the midpoints of consecutive sides of a rectangle is a rhombus.
- 17) If an angle of a parallelogram is two third its adjacent angle , find the angles of the parallelogram.
- 18) ABCD is a square and E, F, G, H are midpoints of AB , BC , CD and AD respectively. Prove that EFGH is a square.