INTERNATIONAL INDIAN SCHOOL
BURAIDAH
Worksheet For The Academic Year 2023-24

## CLASS: IX SUBJECT: Mathematics DATE: 10/09/2023

## LESSON-8 Quadrilaterals

1) The angles of a quadrilateral are $4 x, 7 x, 15 x$ and $10 x$. Find the smallest and the largest angles of the quadrilateral.
2) If the angles of a quadrilateral are in the ratio 1:2:3:4, find the measures of all the angles of the quadrilateral.
3) Two opposite angles of a parallelogram are $(3 x-2)$ and $(63-2 x)$, find the angles of the parallelogram.
4) $A B C D$ is a rhombus. Show that the diagonal $A C$ bisects $L A$ as well as $\llcorner C$.
5) Prove that the diagonals of a rectangle are equal in length.
6) Prove that " A diagonal of a parallelogram divides it into two congruent triangles".
7) 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) $\triangle \mathrm{PQL}$ is congruent to $\triangle \mathrm{RMS}$
(ii) $\mathrm{PL}=\mathrm{RM}$
8) Show that the diagonals of a rhombus are perpendicular to each other.
9) $A B C D$ is a trapezium in which $A B$ is parallel to $C D$ and $E$ is the midpoint of AD . If F is the midpoint of BC such that the segment EF is parallel to DC , prove that F is the midpoint of BC and $\mathrm{EF}=\frac{1}{2}(\mathrm{AB}+\mathrm{DC})$
10) $\triangle A B C$ is right angled at $B$ and $P$ is the midpoint of $A C$. Prove that (i) $\mathrm{PQ} \perp \mathrm{AB}$ (ii) Q is the midpoint of AB (iii) $\mathrm{PA}=\mathrm{PB}=\frac{1}{2} \mathrm{AC}$.
11) $P Q R S$ is a parallelogram. If $A$ and $B$ are points on $Q R$ and $P S$ respectively Such that $\mathrm{QA}=\frac{1}{3} \mathrm{QR}$ and $\mathrm{SB}=\frac{1}{3} \mathrm{SP}$, show that QASB is a parallelogram.
12) In quadrilateral $A B C D, A B=C D$ and $A C$ bisects $L A$, show that $\triangle A B C$ is congruent to $\triangle \mathrm{ADC}$.
13) $\triangle \mathrm{ABC}$ is an equilateral triangle with $\mathrm{D}, \mathrm{E}, \mathrm{F}$ as the midpoints of $\mathrm{BC}, \mathrm{CA}, \mathrm{AB}$ respectively. Prove that $\triangle \mathrm{DEF}$ is also equilateral.
14) State Midpoint Theorem and also state its converse.
15) In trapezium $A B C D, A B$ is parallel to $C D$ and $L A=35, L B=75$. Find $\llcorner\mathrm{C}$ and $\llcorner\mathrm{D}$.
