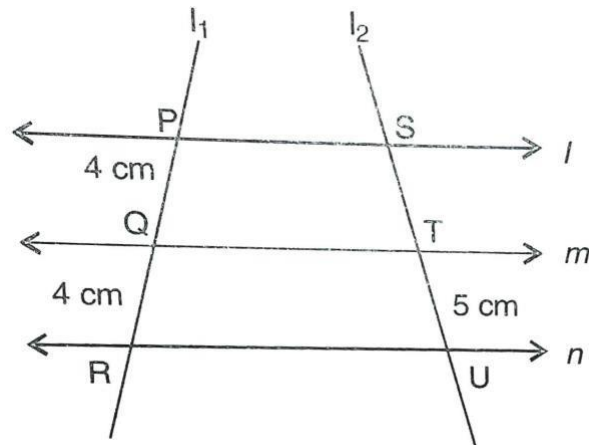


QUADRILATERALS

1. A diagonal of a rectangle is inclined to one side of a rectangle at 25° . Find the acute angle between the diagonals.
2. ABCD is a rhombus with $\angle ABC = 50^\circ$, Find $\angle ACD$.
3. PQRS is a parallelogram and line segments PA and RB bisect the angles P and R respectively. Show that $PA \parallel BR$.
4. In a parallelogram, show that the angle bisectors of two adjacent angles intersect at right angles.
5. ABC and ADC are two right triangles with common hypotenuse AC. Prove that $\angle CAD = \angle CBD$.
6. D, E and F are respectively the midpoints of the sides AB, BC and CA of triangle ABC. Prove that by joining these midpoints D, E and F the triangle ABC is divided into four congruent triangles.
7. ABCD is a parallelogram. AB is produced to E so that $BE = AB$. Prove that ED bisects BC.
8. ABCD is a square and on the side DC, an equilateral triangle is constructed. Prove that $AE = BE$ and $\angle DAE = 15^\circ$.
9. In quadrilateral ABCD there is a point O inside it such that $OB = OD$. Also, $AB = AD$ and $BC = DC$. Prove that O lies on AC.

10. In the given figure, l, m, n are three parallel lines. l_1 and l_2 are two transversals such that $PQ = 4\text{cm} = QR$, If $TU = 5\text{cm}$ find ST .



11. Show that the quadrilateral formed by joining the midpoints of consecutive sides of a square is also a square.

12. Two Parallel Lines l and m are intersected by a transversal P show that quadrilateral formed by bisector of interior angles is a rectangle.

13. If the diagonals of a parallelogram are equal, then show that it is a rectangle.

14. $ABCD$ is a quadrilateral in which $AB \parallel DC$ and $AD = BC$. Prove that angle $A = \text{angle } B$ and angle $C = \text{angle } D$

15. $PQRS$ is a trapezium with $PQ \parallel RS$. M and N are mid-points of diagonals PR and QS . Prove that :

(a) $MN \parallel PQ \parallel RS$ (b) $MN = \frac{1}{2} (PQ - SR)$