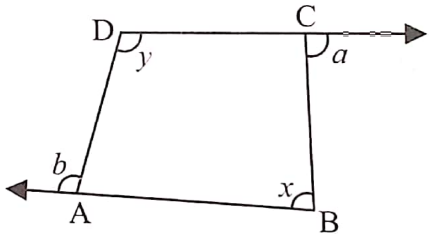
I. Very Short Answer Type Questions

1. Is it possible to construct a quadrilateral with angles 75°, 80°, 85° and 115°? Give reason to support your answer.
2. Can all the angles of a quadrilateral be right angles? Give reason to support your answer.
3. The three angles of a quadrilateral are 70°, 85° and 100°. Find the fourth angle.

II. Short Answer Type Questions

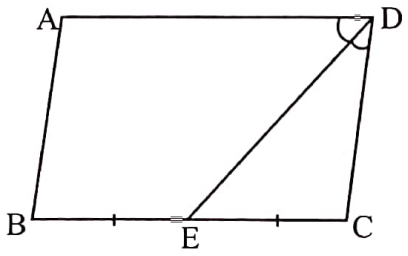
4. The four angles in a quadrilateral are in the ratio 1 : 2 : 4 : 5. Find the measure of all the angles.
5. The angles of a quadrilateral are in the ratio 3 : 5 : 9 : 13. Find the measure of each angle of the quadrilateral.
6. Find the smallest and largest angle of a quadrilateral, if measures of the four angles are $4x$, $7x$, $15x$ and $10x$.
7. The sides BA and DC of quadrilateral ABCD are produced as shown in the figure. Prove that $x + y = a + b$.



8. The three angles of a quadrilateral are in the ratio 3 : 3 : 1 and the fourth angles is 80°. Find the smallest angle.

1. Show that the diagonals of a rhombus are perpendiculars to each other.
2. If the diagonals of a parallelogram are equal, then show that it is a rectangle.

3. Show that bisectors of the angles of a parallelogram form a rectangle.
4. Prove that parallelogram is a rhombus if its diagonals bisect at right angles.
5. Show that if the diagonals of a quadrilateral are equal and bisect each other at right angles then it is a square.
6. ABCD is a rhombus. Show that diagonal AC bisects $\angle A$ as well as $\angle C$ and diagonal BD bisects $\angle B$ as well as $\angle D$.
7. ABCD is a rectangle in which diagonal AC bisects $\angle A$ as well as $\angle C$. Show that:
   (*i*) ABCD is a square
   (*ii*) diagonal BD bisects $\angle B$ as well as $\angle D$.
8. In the given figure, ABCD is a parallelogram, the line DE bisects $\angle D$ as well as BC at E. Prove that AD = 2CD.



9. In the given figure, ABCD is a parallelogram and AP and CQ are perpendiculars from vertices A and C respectively on diagonal BD.
   Show that:
   (*i*) $\Delta APB \cong \Delta CQD$ (*ii*) AP = CQ