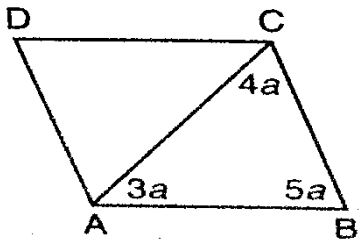
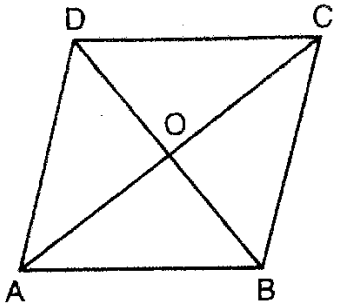
RECTILINEAR FIGURES

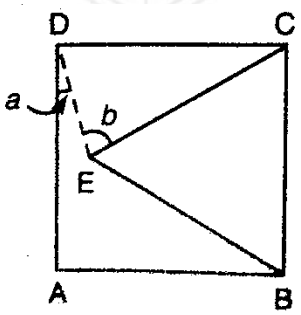
1. The diagonals of a rectangle are of equal length.
2. If the diagonals of a parallelogram are perpendicular to each other, then it is rhombus.
3. Two opposite angles of a parallelogram are$(3x-2)°$ and $(50 – x)°$. Find the measure of each angle of the parallelogram.
4. In figure find the angles of the parallelogram ABCD.



5. In figure in parallelogram ABCD, AB = 3 cm and the diagonals AC and BD are 5.8 cm and 4.2 cm respectively, find the perimeter of ΔAOB.

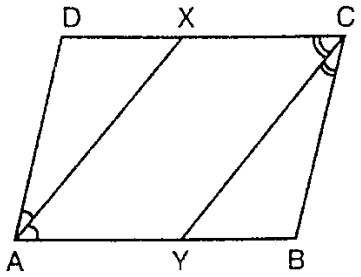


6. In figure ABCD is a square and BCE is an equilateral triangle. Find value of a, b and reflex ∠BED.

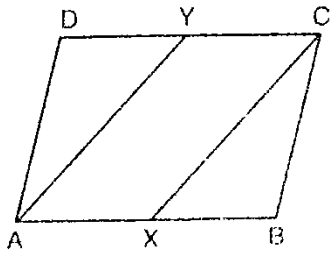


7. ABCD is rectangle in which diagonal DB is produced to E. Given ∠ABE= 140°, find the angles of ΔAOD.
8. KLMN is an isosceles trapezium whose diagonals cut at X and KL is parallel to NM, If ∠ KNL =25°, ∠KMN=30°, find (a) ∠KXN, (b) ∠MLN.

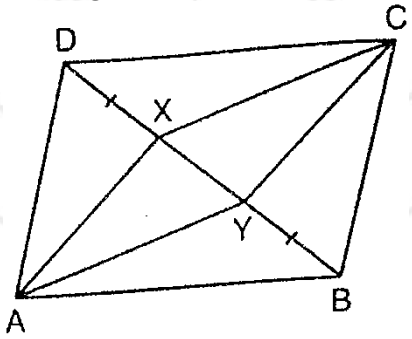
9. ABCD is jite in which ∠OBC = 20° and ∠OCD=35°, find
   i. ∠ABC,
   ii. ∠ADC,
   iii. ∠BAD
10. ABCD is a parallelogram and line segments AX, CY bisect the angles A and C respectively. Show that AX ‖ CY.



11. In figure ABCD is parallelogram and X, Y are the mid-points of sides AB and DC respectively. Show that quad AXCY is a parallelogram.



12. In figure quad. ABCD is a parallelogram and X, Y are points on the diagonal BD such that DX = BY. Prove that quad. AXCY is a parallelogram.



13. If the diagonal of a parallelogram bisects one of the angles of the parallelogram, it also bisects the second angle and then the two diagonals are perpendicular to each other.
14. ABCD is a square. A is joined to point P on BC and D is joined to a point Q on AB. If AP = DQ, prove that AP⊥DQ

CONSTUCTION OF QUADRILATERALS

To construct a quadrilateral when the lengths of its four sides and one diagonal are given

1. Construct a quadrilateral ABCD in which AB = 3.7 cm, BC =4.2 cm, CD =3 cm, DA =3.7 cm and AC =5.5 cm.

To construct a quadrilateral when its three sides and the two diagonals are given.

2. Construct a quadrilateral ABCD in which BC= 4.8 cm, CA=AD =5.8 cm, CD = 5.2 cm and BD = 7.2 cm.

To construct a quadrilateral when its three sides and their two included angle are given.

3. Construct a quadrilateral ABCD such that AB = 3.8 cm, BC = 5.7cm, CD = 5.2 cm, angle B = 60° and angle C=75°.

To construct a quadrilateral when its four sides and the one angle are given.

4. Construct a quadrilateral ABCD in which AB =3cm, BC =4, CD=4.5 cm, AD =6.5 cm and ∠B=90°.

To construct a quadrilateral when its three angles and their included sides are given.

5. Construct a quadrilateral ABCD in which AB = 4.5 cm, BC = 7.5 cm, ∠A= 80°, ∠B = 100° and ∠C 120°.

RECTAMGLES

1. To construct a rectangle with sides of 4cm and 3 cm, i.e. , sides are given.
2. To construct rectangle ABCD with AB =4 cm and AC = 4.6 cm, i.e. , one side and the diagonal are given.

PARALLELOGRAMS

1. To construct a ‖ gm ABCD in which AB = 4 cm, BC = 3 cm, ∠B = 60°, i.e. two adjacent side and the included angle are given.
2. To construct a ‖ gm ABCD so that AB= 4.5 cm, BC = 3.7 cm, and height = 2.5 cm, i.e. height and two sides are given.
3. To construct a ‖ gm ABCD when AB = 4.5 cm, AC =4.2 cm, and BD = 6.6 cm, i.e. one side and the two diagonals are given.

RHOMBUSES OR RHOMBI

Given one side and angle.

1. Construct a rhombus ABCD of side 4.5 cm and ∠A=55°.

Given one side and diagonal

2. Construct a rhombus PQRS given PQ = 4.3 cm and PR == 5.5 cm.

Given two diagonals.

3. Construct a rhombus ABCD given AC= 5 cm and BD = 6 cm

SQUQRE

To construct a square whose diagonal is given

1. Construct a square whose diagonal is 6cm.

TRAPEZIUM

To construct a trapezium when one of the parallel sides, two non-parallel sides and height are given.

1. Construct a trapezium ABCD in which AB ‖ DC, AB = 5.6 cm, height = 2.1 cm, BC = 2.7 cm, and AD = 3 cm.

To construct a trapezium whose four sides are given.

2. Construct a trapezium ABCD, having AB ‖ DC, AB = 3.4, CD = 5.5 cm, BC = 2.8 cm and AD = 3 cm.

To construct a regular hexagon.

1. Construct a regular hexagon of side 1.8 cm.