



MATHS

BOOKS - SWAN PUBLICATION

QUADRILATERALS

Exercise 8 1

1. The angles of quadrilateral are in the ration 3:6:8:13. Find all the angles of the quadrilateral.



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2. Which of the following statements are True or False :

If the diagonals of a parallelogram are equal then it is a rectangle.



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3. If diagonals of a quadrilateral bisect each other at right angles, then it is a :

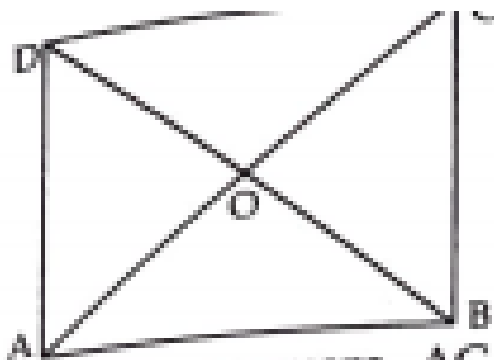




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4. Show that the diagonals of a square are equal and bisect each other at right angles

Q. 10

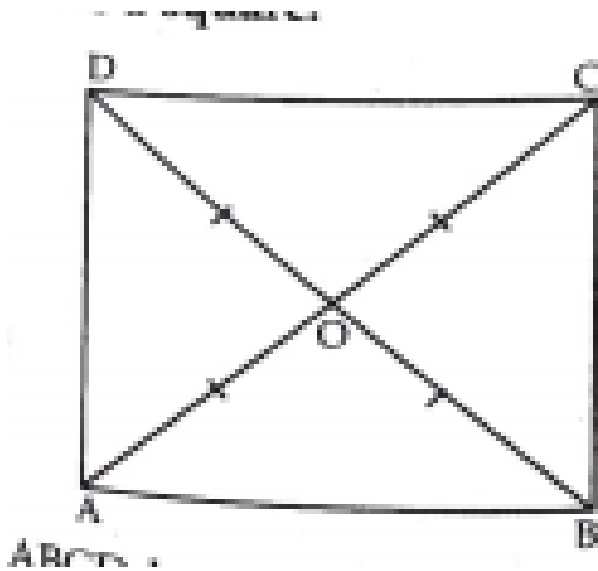


Q. 10 is a square. AC and BD



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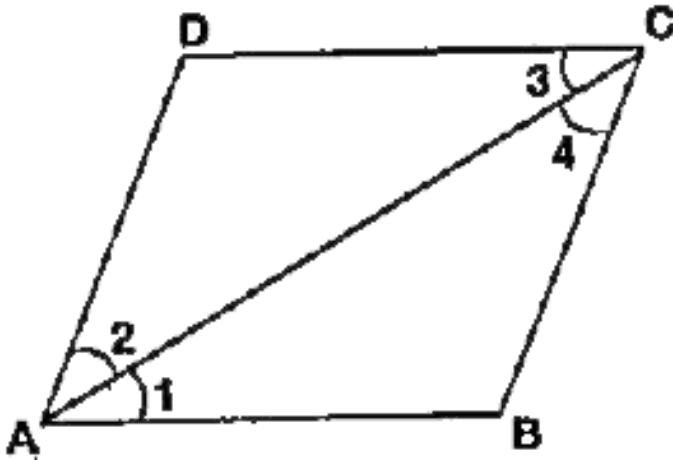
5. Show that if the diagonals of a quadrilateral are equal and bisect each other at right angles, then it is a square



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6. Diagonal AC of a parallelogram ABCD bisects

$\angle A$ Show that



(i) it bisects $\angle C$ also, (ii) ABCD is a rhombus.



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7. ABCD is a rhombus. Show that the diagonal AC bisects $\angle A$ as well as $\angle C$ and diagonal BD bisects $\angle B$ as well as $\angle D$.



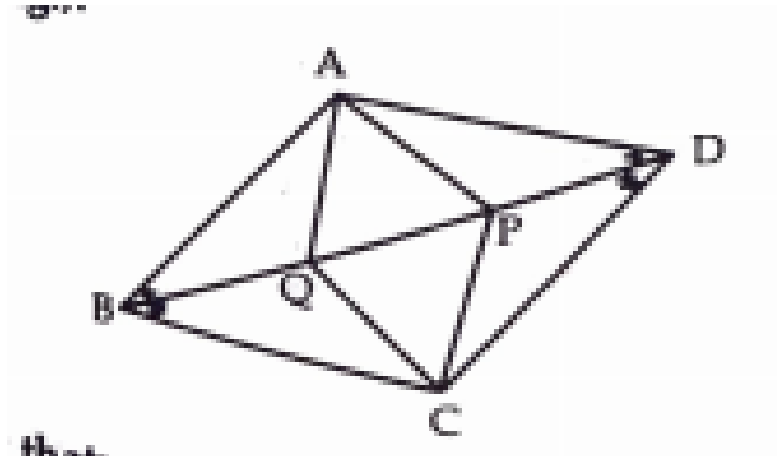
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8. ABCD is a rectangle in which diagonal AC bisects $\angle A$ as well as $\angle C$. Show that ABCD is a square.



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9. In parallelogram ABCD, two points P and Q are taken on diagonal BD such that $DP=BQ$

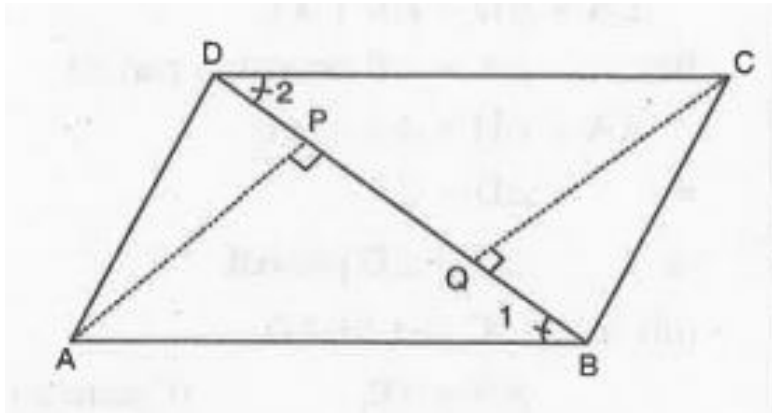


Show that: $AQ=CP$

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10. ABCD is a parallelogram and AP and CQ are the perpendiculars from vertices A and C on

its diagonal BD (See fig.)



Show

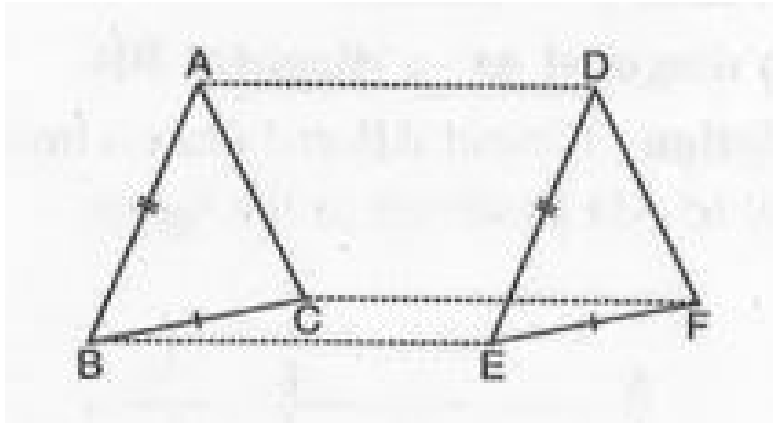
that $AP = CQ$.



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11. In $\triangle ABC$ and $\triangle DEF$, $AB = DE$,
 $AB \parallel DE$, $BC = EF$ and $BC \parallel EF$. Vertices
A, B and C are joined to vertices D, E and F

respectively (See fig.)



Show

that quadrilateral ABED is a parallelogram.



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12. ABCD is a trapezium in which $AB \parallel CD$

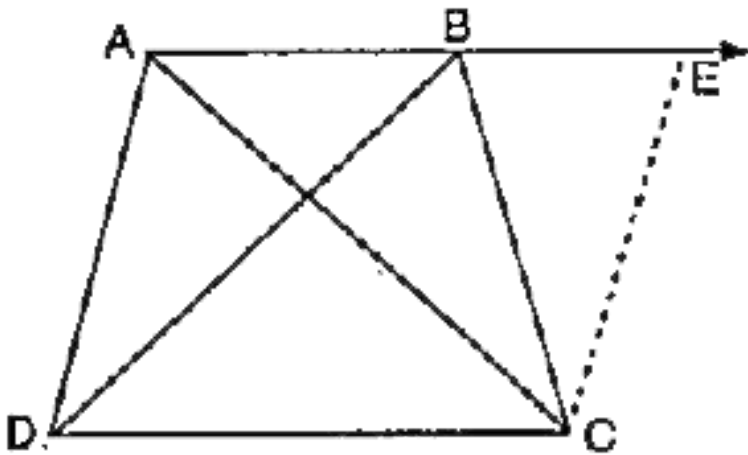
and $AD=BC$. Show that

(i) $\angle A = \angle B$

(ii) $\angle C = \angle D$

(iii) $\triangle ABC \cong \triangle BAD$

(iv) diagonal $AC =$ diagonal BD



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Exercise 8 2

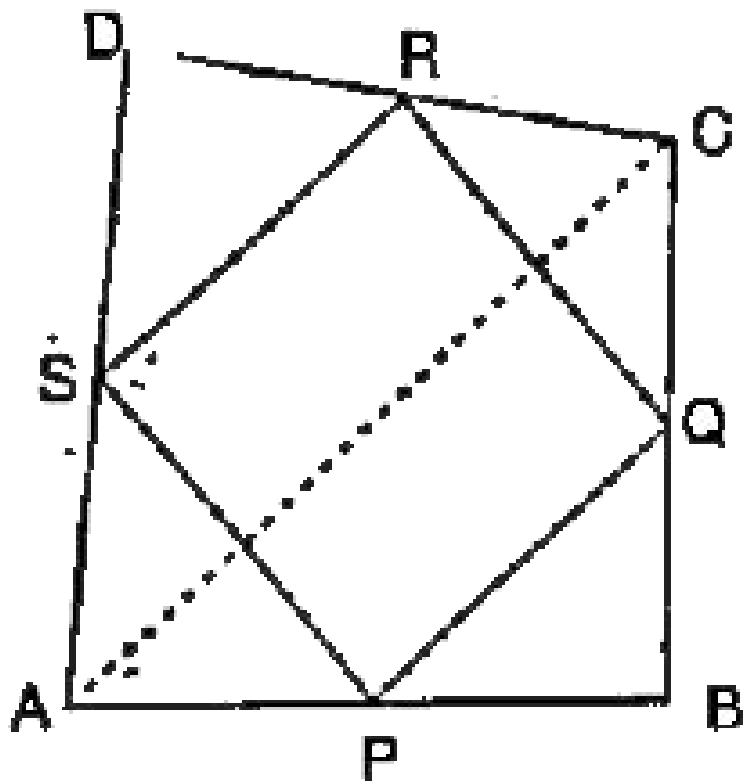
1. ABCD is a quadrilateral in which P, Q, R and S are mid-points of the sides AB, BC, CD and DA.

AC is a diagonal. Show that

$$SR \parallel AC \text{ and } SR = \frac{1}{2}AC$$

(ii) $PQ=SR$

PQRS is a parallelogram.



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2. ABCD is a rectangle and P, Q, R and S are the mid-points of the sides AB, BC, CD and DA respectively. Show that the quadrilateral PQRS is a rhombus.



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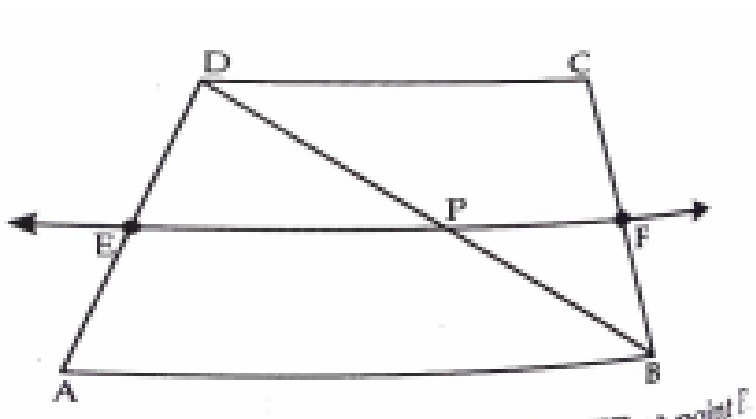
3. ABCD is a rectangle and P, Q, R and S are the mid-points of the sides AB, BC, CD and DA respectively. Show that the quadrilateral PQRS is a rhombus.





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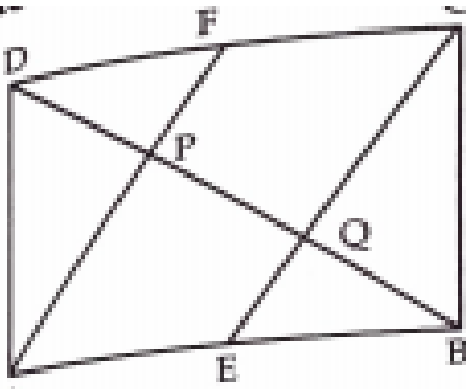
4. ABCD is a trapezium, in which $AB \parallel DC$ are a diagonal and E is the mid point of AD. A is drawn through E, parallel to AB intersect BC at F. Show that F is the mid point of BC



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5. In a parallelogram ABCD, E and F are the mid points of sides AB and CD respectively show that the line segments AF and EC trisect the diagonal BD

Trisect



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6. Show that the line segments joining the mid-points of opposite sides of a quadrilateral bisect each other.



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7. ABC is a triangle right angled at C. A line through the mid-point M of hypotenuse AB and parallel to BC intersects AC at D. Show that D is the mid-point of AC.



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Objective Type Questions

1. Quadrilateral with one pair of parallel sides is



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2. All the angles of a quadrilateral are equal. What special name is given to this quadrilateral?



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3. Using vectors, prove that a parallelogram whose diagonals are equal is a rectangle.



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4. Given the following statement :

If a quadrilateral is a parallelogram, then its diagonals bisect each other.

Identify these as contrapositive or converse of each other.



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5. Identify the type of quadrilateral in the following .

A quadrilateral whose diagonals bisect each other at right -angles .



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6. If three sides of a quadrilateral are equal, it is a parallelogram. Is it true.





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7. Identify the type of quadrilateral in the following .

A quadrilateral whose diagonals bisect each other at right -angles .



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8. A quadrilateral is a parallelogram, if its one pair of opposite sides are equal and parallel.



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9. The line-segment joining the mid-points of two sides of a triangle is parallel to the third side and Of it.



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10. Prove that the figure formed by joining the mid-points of the pairs of consecutive sides of a quadrilateral is a parallelogram.



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Objective Type Questions Fill In The Blanks

1. Sum of the angles of a quadrilateral is
..... .



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2. A diagonal of parallelogram divides it into
four triangles of equal area.



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3. Diagonals of the rhombus bisect each other at _____ .



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4. If there are three parallel lines, and the intercepts made by them on one transversal are equal, then the intercepts on any other transversal are also equal.



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5. The figure formed by joining the midpoints of the consecutive sides of a quadrilateral is



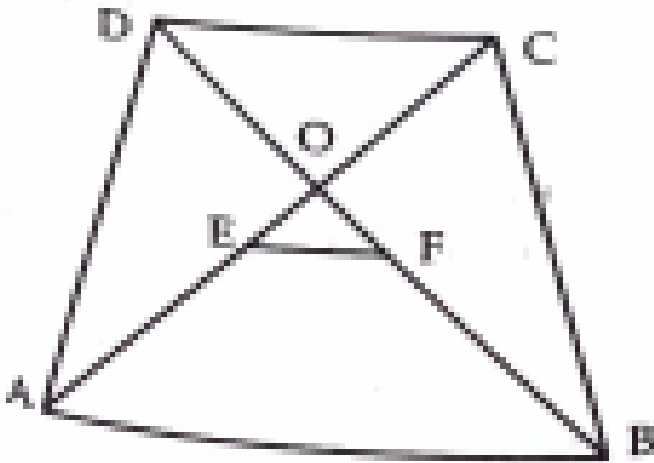
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6. The line drawn through the mid-points of one side of a triangle, parallel to another side, intersects the third side at its midpoint.



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7. In a trapezium ABCD, if E and F be the mid points of the diagonals AC and BD respectively, then $EF =$



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8. Which of the following statements are True or False :

The diagonals of a rectangle bisect each other at right angles.



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9. If two opposite angles of a parallelogram are $(3x - 2)^\circ$ and $(50 - x)^\circ$ then the value of $x = \dots\dots\dots$



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10. Say True or False:

Each angle of a rectangle is a right angle.



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