



MATHS

BOOKS - NCERT MATHS (HINGLISH)

QUADRILATERALS

Quadrilaterals

1. Three angles of a quadrilateral are 75° , 90° and 75° , then the fourth angle is

A. 90°

B. 95°

C. 105°

D. 120°

Answer: D



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2. A diagonal of a rectangle is inclined to one side of the rectangle at 25° . The acute angle between the diagonals is

A. 55°

B. 50°

C. 40°

D. 25°

Answer: B



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3. ABCD is a rhombus such that $\angle ACB = 40^\circ$
, then $\angle ADB$ is

A. 40°

B. 45°

C. 50°

D. 60°

Answer: C



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4. The quadrilateral formed by joining the mid-points of the sides of a quadrilateral PQRS, taken in order, is a rectangle, if

- A. PQRS is a rectangle
- B. PQRS is parallelogram
- C. diagonals of PQRS are perpendicular
- D. diagonals of PQRS are equal

Answer: C



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5. The quadrilateral formed by joining the mid-points of the side for quadrilateral PQRS, taken in order, is a rhombus, if

A. PQRS is a rhombus

B. PQRS is parallelogram

C. diagonals of PQRS are perpendicular

D. diagonals of PQRS are equal

Answer: D



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6. If angles A, B, C and D of the quadrilateral ABCD, taken in order are in the ratio 3 : 7 : 6 : 4, then ABCD is a

A. rhombus

B. parallelogram

C. trapezium

D. kite

Answer: C



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7. If bisectors of $\angle A$ and $\angle B$ of a quadrilateral ABCD intersect each other at P,

of $\angle B$ and $\angle C$ at Q, of $\angle C$ and $\angle D$ at R and of $\angle D$ and $\angle A$ at S, then PQRS is a

A. rectangle

B. rhombus

C. parallelogram

D. quadrilateral whose opposite angles are supplementary

Answer: D



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8. If APB and CQD are two parallel lines, then the bisectors of the angles APQ , BPQ , CQP and PQD form

A. a square

B. a rhombus

C. a rectangle

D. any other parallelogram

Answer: C



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9. The figure obtained by joining the mid-points of the sides of a rhombus, taken in order, is

A. a rhombus

B. a rectangle

C. a square

D. any parallelogram

Answer: B



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10. D and E are the mid-points of the sides AB and AC of $\triangle ABC$ and O is any point on side BC. O is joined to A. If P and Q are the mid-points of OB and OC respectively, then DEQP is

A. a square

B. a rectangle

C. a rhombus

D. a parallelogram

Answer: D



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11. The figure formed by joining the mid-points of the sides of a quadrilateral ABCD, taken in order, is a square only, if

A. ABCD is a rhombus

B. diagonals of ABCD are equal

C. diagonals of ABCD are equal and perpendicular

D. diagonals of ABCD are perpendicular

Answer: C



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12. The diagonals AC and BD of a parallelogram ABCD intersect each other at the point O. If $\angle DAC = 32^\circ$ and $\angle AOB = 70^\circ$, then $\angle DBC$ is equal to

A. 24°

B. 86°

C. 38°

D. 32°

Answer: C



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13. Which of the following is not true for a parallelogram ?

A. Opposite sides are equal

B. Opposite angles are equal

C. Opposite angles are bisected by the diagonals

D. Diagonals bisect each other

Answer: C



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14. D and E are the mid-points of the side AB and AC, respectively, of $\triangle ABC$. DE is produced to F. To prove that CF is equal and parallel to

DA, we need an additional information which is

A. $\angle DAE = \angle EFC$

B. $AE = EF$

C. $DE = EF$

D. $\angle ADE = \angle ECF$

Answer: C



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15. Diagonals AC and BD of a parallelogram ABCD intersect each other at O. If $OA = 3$ cm and $OD = 2$ cm, determine the lengths of AC and BD.



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16. Diagonals of a parallelogram are perpendicular to each other. Is this statement true? Give reason for your answer.



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17. Can the angles 110° , 80° , 70° and 95° be the angles of a quadrilateral ? Why or why not?



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18. In quadrilateral ABCD, $\angle A + \angle D = 180^\circ$. What special name can be given to this quadrilateral?



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19. All the angles of a quadrilateral are equal.

What special name is given to this quadrilateral ?



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20. Diagonals of a rectangle are equal and perpendicular. Is this statement true ? Give reason for your answer.



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21. Can all the four angles of a quadrilateral be obtuse angles ? Give reason for your answer.

A. yes

B. no

C. can not determine

D. none of these

Answer: B



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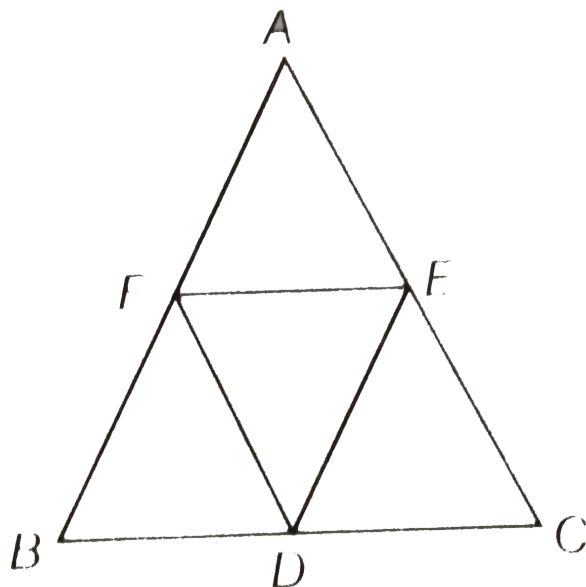
22. In $\triangle ABC$, $AB = 5\text{cm}$, $BC = 8\text{ cm}$ and $CA = 7\text{cm}$. If D and E are respectively the mid-points of AB and BC , determine the length of DE .



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23. In the figure, it is given that $BDEF$ and $FDCE$ are parallelogram. Can you say that $BD = CD$?

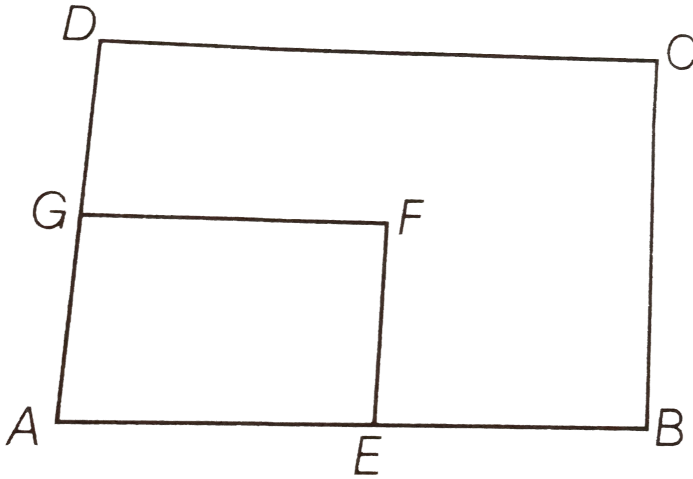
Why or why not?



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24. In figure, ABCD and AEFG are two parallelograms. If $\angle C = 55^\circ$, then determine

$\angle F$.



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25. Can all the angles of a quadrilateral be acute angles ? Give reason for your answer.



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26. Can all the angles of a quadrilateral be right angles ? Give reason for your answer.



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27. Diagonals of a quadrilateral ABCD bisect each other. If $\angle A = 35^\circ$, determine $\angle B$.

A. $\angle B = 145^\circ$

B. $\angle B = 115^\circ$

C. $\angle B = 135^\circ$

D. $\angle B = 125^\circ$

Answer: A



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28. Opposite angles of a quadrilateral ABCD are equal. If $AB = 4$ cm, determine CD.



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29. One angle of a quadrilateral is 108° and the remaining three angles are equal. Find the three equal angles.

A. 94°

B. 74°

C. 84°

D. 104°

Answer: C



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30. ABCD is a trapezium in which $AB \parallel DC$ and $\angle A = \angle B = 45^\circ$. Find angles C and D of the trapezium.



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31. The angle between two altitudes of a parallelogram through the vertex of an obtuse angle of the parallelogram is 60° . Find the angles of the parallelogram.



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32. ABCD is a rhombus in which altitude from D to side AB bisects AB. Find the angles of the rhombus.



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33. E and F are points on diagonal AC of a parallelogram ABCD such that $AE=CF$. Show that BFDE is a parallelogram.



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34. E is the mid-point of the side AD of the trapezium ABCD with $AB \parallel DC$. A line through E drawn parallel to AB intersects BC at F. then

A. Point F trisect BC

B. Point F bisect BC

C. $AB=CD$

D. None

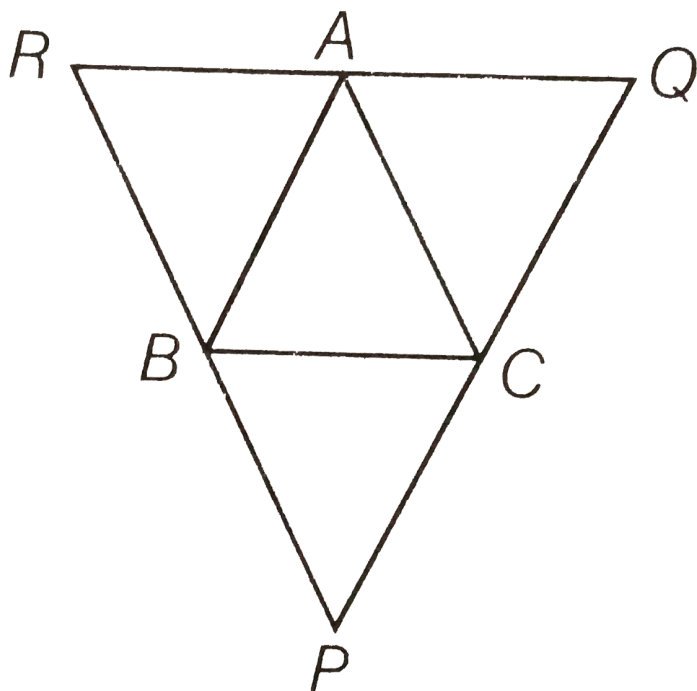
Answer: B



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35. Through A, B and C lines RQ, PR and QP have been drawn, respectively parallel to sides BC, CA and AB of a $\triangle ABC$ as shown in figure.

Show that $BC = \frac{1}{2}QR$.





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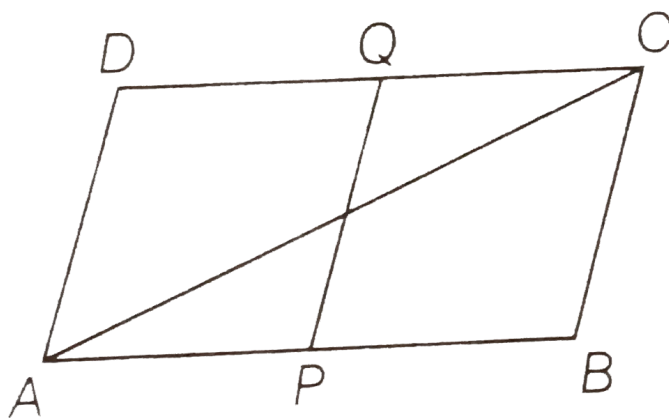
36. D, E and F are the mid-points of the sides BC, CA and AB, respectively of an equilateral $\triangle ABC$. Show that $\triangle DEF$ is also an equilateral triangle.



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37. Points P and Q have been taken on opposite sides AB and CD, respectively of a

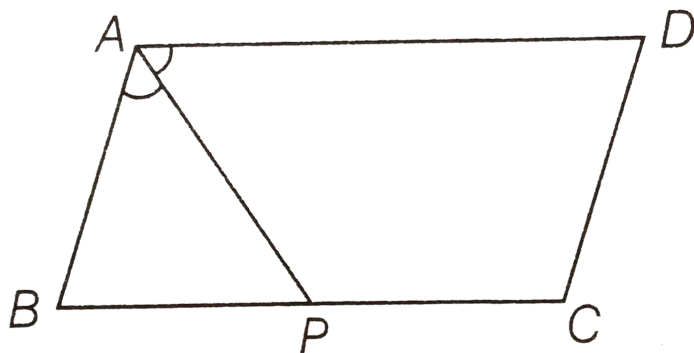
parallelogram $ABCD$ such that $AP=CQ$. Show that AC and PQ bisect each other.



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38. In figure, P is the mid-point of side BC of a parallelogram $ABCD$ such that

$\angle BAP = \angle DAP$. Prove that $AD = 2CD$. ItBrgt



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39. A square is inscribed in an isosceles right triangle, so that the square and the triangle have one angle common. Show that the vertex of the square opposite the vertex of the common angle bisects the hypotenuse.



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40. In a parallelogram ABCD, $AB = 10$ cm and $AD = 6$ cm. The bisector of $\angle A$ meets DC in E. AE and BC produced meet at F. Find the length of CF.



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41. P, Q, R and S are respectively the mid-points of the sides AB, BC, CD and DA of a

quadrilateral ABCD in which $AC = BD$. Prove that PQRS is a rhombus.



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

A. Rectangle

B. Square

C. Trapezium

D. None

Answer: A



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43. P, Q, R and S are respectively the mid-points of sides AB, BC, CD and DA of quadrilateral ABCD in which $AC=BD$ and $AC \perp BD$. Prove that PQRS is a square.



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44. If diagonal of a parallelogram bisects one of the angles of the parallelogram, it also bisects the second angle. Also, prove that it is a rhombus.



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45. ABCD is a parallelogram in which P and Q are mid-points of opposite sides AB and CD (see Fig. 8.18). If AQ intersects DP at S and BQ intersects CP at R, show that: (i) APCQ is a

parallelogram. (ii) DPBQ is a parallelogram. (iii)

PSQR is a parall



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46. ABCD is a quadrilateral in which $AB \parallel DC$ and

$AD = BC$. Prove that

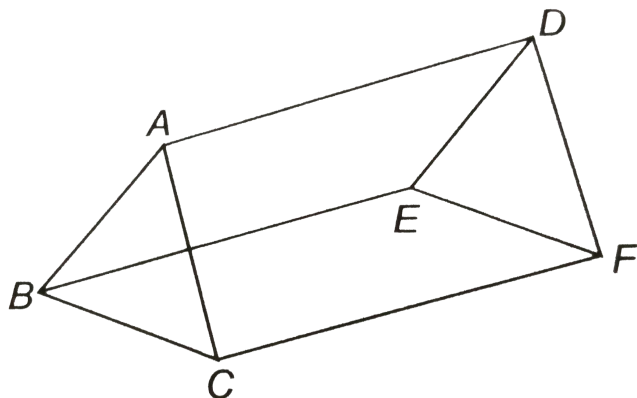
$\angle A = \angle B$ and $\angle C = \angle D$.



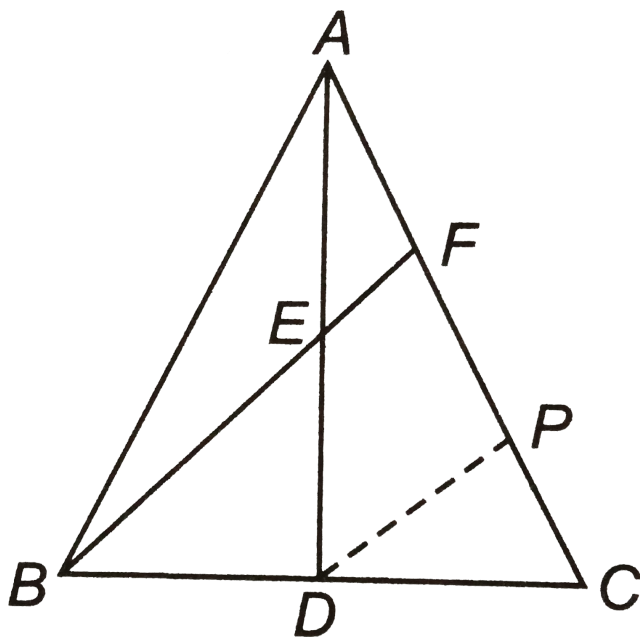
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47. In figure, $AB \parallel DE$, $AB = DE$, $AC \parallel DF$ and $AC = DF$.

Prove that $BC \parallel EF$ and $BC = EF$.



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48.

In

ABC , AD is the median through A and E is the mid-point of AD . BE produced meets AC in F (Figure). Prove that $AF = \frac{1}{3}AC$.



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49. The quadrilateral, formed by joining the mid-points of the sides of a square, is a

A. Rhombus

B. Square

C. Kite

D. Trapezium

Answer: B



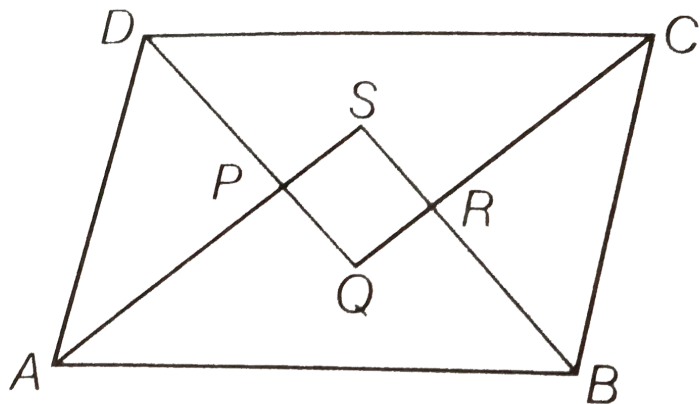
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50. In Figure, $ABCD$ is a trapezium in which side AB is parallel to side DC and E is the mid-point of side AD . If F is a point on the side BC such that the segment EF is parallel to side DC . Prove that F is the mid point of BC and $EF = \frac{1}{2}(AB + DC)$.



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51. The quadrilateral formed by the bisectors of the angles of a parallelogram is a



A. Trapezium

B. Kite

C. Rectangle

D. None

Answer: C



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52. P and Q are points on opposite sides AD and BC of a parallelogram ABCD such that PQ passes through the point of intersection O of its diagonals AC and BD. Show that PQ is bisected at O.



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53. ABCD is a rectangle in which diagonal BD bisects $\angle B$. then $ABCD$ is a

A. Rectangle

B. Rhombus

C. Parallelogram

D. Square

Answer: D



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54. In $\triangle ABC$, D, E and F are respectively the mid-points of sides AB, BC and CA. Show that

$\triangle ABC$ is divided into four congruent triangles by joining D, E and F.



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55. Prove that the line segment joining the mid-points of the diagonals of a trapezium is parallel to each of the parallel sides and is equal to half the difference of these sides.



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56. P is the mid-point of the side CD of a parallelogram ABCD. A line through C parallel to PA intersects AB at Q and DA produced at R. Prove that $DA = AR$ and $CQ = QR$.



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