

SUBJECT-MATHEMATICS, CLASS – IX
CHAPTER 8-(QUADRILAERALS)
WORKSHEET (BASIC)

TIME-45min

MAX.MARKS- 20

Choose the correct option: (2X1=2)

1. In which of the following the diagonals are equal?
a. Parallelogram b. Rhombus c. Rectangle d. trapezium
2. In a parallelogram ABCD, if $\angle DAB = 75^\circ$ and $\angle DBC = 60^\circ$, then $\angle BDC$ is –
a. 75° b. 60° c. 45° d. 55°

Fill in the blanks (2x1=2)

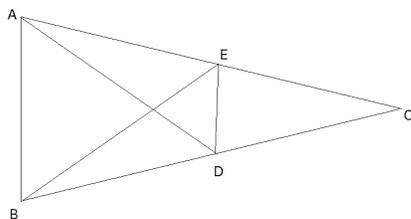
3. A quadrilateral will be a parallelogram if and only if its diagonals _____ each other.
4. The angles of a quadrilateral are $75^\circ, 90^\circ$ and 75° . Then fourth angle is _____ .

Answer the following (2X1=2)

5. Two consecutive angles of parallelogram are in the ratio 2:3. Find the smaller angle.
6. If ABCD is rectangle with $\angle BAC = 32^\circ$, find the measure of $\angle DBC$.

Short Answer Type Question – I (2x2=4)

7. The diagonal of a rectangle ABCD intersect at the point O . If $\angle BOC = 50^\circ$, then find $\angle OAD$.
8. In the given figure, AD is the median and $DE \parallel AB$. Prove that BE is the median.



Short Answer Type Question – II (2x3=6)

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

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

Long Answer Type Question (1x4=4)

11. ABC is a triangle right angled at C . A line through the mid-point M of hypotenuse AB and parallel to BC intersect AC at D. Show that $CM = MA = \frac{1}{2} AB$.

DAV PUBLIC SCHOOL, CDA SEC-6 CUTTACK
SUBJECT-MATHEMATICS, CLASS – IX
CHAPTER 8-(QUADRILATERALS)
WORKSHEET (STANDARD)

TIME-45min

MAX.MARKS- 20

Choose the correct option :(2X1=2)

- The figure formed by joining the mid-points of the adjacent sides of a rectangle is a
a. square b. Rhombus c. Rectangle d. trapezium
- The diagonal 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. 75° b. 60° c. 38° d. 55°

Fill In The Blanks (2x1=2)

- Diagonals of a quadrilateral ABCD bisect each other. If $\angle A = 45^\circ$, then $\angle B =$ _____.
- ABCD is a rhombus such that $\angle ACB = 40^\circ$, then $\angle ADB$ is _____.

Answer The Following Questions (2x1=2)

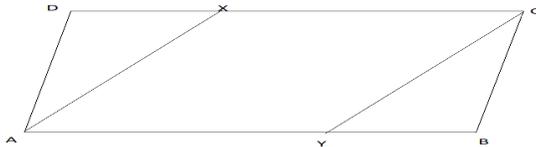
- The parallel sides of a trapezium are 7cm and 5cm respectively. Find the line segment joining the mid-points of its non-parallel sides.
- In ΔABC , D and E are the mid-points of AB and AC respectively and $DE = 5.6$ cm. Find the length of BC.

Short Answer Type Question – I (2x2=4)

- A diagonal of a parallelogram bisect one of its angles. Show that it's a rhombus.
- If an angle of a parallelogram is two third of its adjacent angle , Find the smallest angle so fthe parallelogram.

Short Answer Type Question – II (2x3=6)

- ABCD is a parallelogram and line segment AX, CY bisects the angles A and C respectively. Show that $AX \parallel CY$.



- In ΔABC , D, E, F are mid-points of side AB, BC and CA respectively. Show that ΔABC is divided into four congruent triangles by joining D, E and F.

Long Answer Type Question (1X4=4)

- Prove that the line segment joining the midpoints of the diagonals of a trapezium is parallel to the parallel sides of the trapezium.

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CHAPTER 8-(QUADRILAERALS)
WORKSHEET (ADVANCE)

TIME-45min

MAX.MARKS- 20

Choose the correct option :(2X1=2)

- A diagonal of a rectangle is inclined to one side of the rectangle at 25° .The acute angle between the diagonals is
 a. 50° b. 55° c. 40 d. 25°
- The two diagonals are equal in a

- a. parallelogram b. rhombus c. rectangle d. trapezium

Fill In The Blanks (2x1=2)

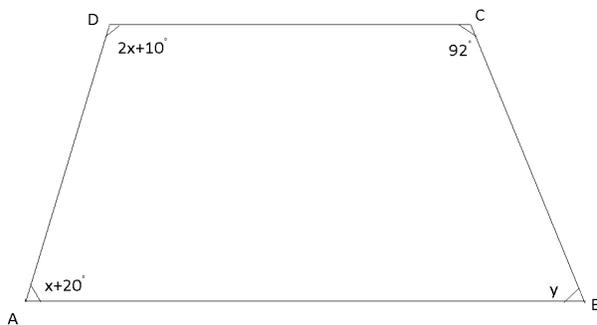
12. Bisectors of angles of a parallelogram enclose a _____.
13. ABCD is a parallelogram. M is the mid-point of BD and BM bisects $\angle B$. Then $\angle AMB =$ _____.

Answer The Following Questions (2x1=2)

14. In a parallelogram ABCD, bisectors of $\angle A$ and $\angle B$ intersect at a point P. Find $\angle APB$.
15. If the diagonals of a rhombus are 18cm and 24cm respectively, then find its sides.

Short Answer Type Question – I (2x2=4)

16. In $\triangle ABC$, $AB=5\text{cm}$, $BC=8\text{cm}$ and $CA=7\text{cm}$. If D and E respectively mid-points of AB and BC, determine the length of DE. Is $DE \parallel BC$?
17. In the figure, ABCD is a trapezium find the value of x and y.



Short Answer Type Question – II (2x3.=6)

18. In a quadrilateral ABCD, a line segment bisecting $\angle C$ and $\angle D$ meet at E. Prove that $\angle A + \angle B = 2\angle CED$
19. ABCD is trapezium in which $AB \parallel CD$ and $AD = BC$ show that $\angle A = \angle B$.

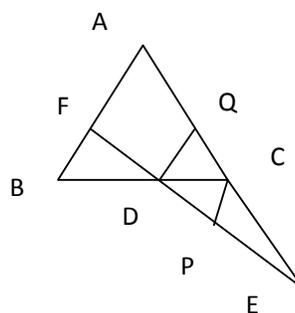
Long Answer Type Question(1X4=4)

20. E is the midpoint of median AD of $\triangle ABC$ and BE is produce to meet AC at F. Show that $AF = \frac{1}{3} AC$.

SUBJECT-MATHEMATICS, CLASS – IX
CHAPTER 8-(QUADRILATERALS)
WORKSHEET (HOTS)

1. PQRS is a parallelogram . M is a point on PS such that $PM = \frac{1}{3} PS$ and N is a point on QR such that $RN = \frac{1}{3} QR$. Prove that the quadrilateral PNRM is a gm.
2. In ΔABC , P and Q are mid-points of sides AB and AC respectively. R and S are the mid-points of PC and PB respectively. Prove that BQ and SR bisect each other.
3. ABCD is a square. Side AB is produced to points P and Q in such way that $PA = AB = BQ$. Prove that $DQ = CP$.
4. Prove that any straight line drawn from the vertex of a triangle to the base is bisected by the straight line which joins the middle points of the other sides of triangle.

5. In the figure, the sides AC of a ΔABC is produced to E such that $CE = \frac{1}{2} AC$. If D is the mid-point of BC and ED produced meets AB in F and CP, DQ are drawn parallel to BA. Prove that $FD = \frac{1}{3} FE$.



6. PQ and RS are two equal and parallel lines –segments. Any point M not lying on PQ or RS is joined to Q and S and lines through P parallel to QM and through R parallel to SM meet at N. Prove that line segment MN and PQ are equal and parallel to each other.
7. P is the mid-point of the side CD of a $\Delta ABCD$. A line through C parallel to PA intersects AB at Q and DA produced at R. Prove that $DA = AR$ and $CQ = QR$.
8. ABC is a triangle and through A, B, C lines are drawn parallel to BC, CA and AB respectively intersecting at P, Q and R. Prove that the perimeter of ΔPQR is double the perimeter of a ΔABC .

9. 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 common angle bisects the hypotenuse.

10. In the figure, $BE \perp AC$. AD is any line from A to BC intersecting BE in H . P , Q and R are respectively the mid-points of AH , AB and BC . Prove that

$$\angle PQR = 90^\circ.$$

