

MATHEMATICS
WORKSHEET_120326
CHAPTER 04 QUADRILATERALS

SUBJECT: MATHEMATICS
CLASS : VIII

MAX. MARKS : 40
DURATION : 1½ hrs

General Instructions:

- (i). All questions are compulsory.
 - (ii). This question paper contains 20 questions divided into five Sections A, B, C, D and E.
 - (iii). **Section A** comprises of 10 MCQs of 1 mark each. **Section B** comprises of 4 questions of 2 marks each. **Section C** comprises of 3 questions of 3 marks each. **Section D** comprises of 1 question of 5 marks each and **Section E** comprises of 2 Case Study Based Questions of 4 marks each.
 - (iv). There is no overall choice.
 - (v). **Use of Calculators is not permitted**
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SECTION – A

Questions 1 to 10 carry 1 mark each.

- 1. A quadrilateral has angles 80° , 100° , 70° and x° . What is the value of x ?
(a) 100° (b) 110° (c) 120° (d) 90°
- 2. The sum of interior angles of a polygon with 6 sides is:
(a) 360° (b) 540° (c) 720° (d) 900°
- 3. Which of the following quadrilaterals has both pairs of opposite sides parallel and all angles equal?
(a) Rhombus (b) Parallelogram (c) Square (d) Trapezium
- 4. If the three angles of a quadrilateral are 70° , 90° and 120° , then find the measure of the fourth angle.
(a) 100° (b) 75° (c) 80° (d) 60°
- 5. Find the measure of each interior angle of a regular polygon with 12 sides.
(a) 150° (b) 160° (c) 130° (d) 180°
- 6. The measure of two adjacent angles of a parallelogram are in the ratio 2:3. Find the measure of each of the angles of a parallelogram.
(a) 72° , 108° (b) 54° , 112° (c) 68° , 99° (d) 86° , 114°
- 7. Identify the quadrilateral with the following properties:
(i) One pair of opposite sides are parallel
(ii) Diagonals are unequal
(a) Parallelogram (b) Trapezium (c) Rectangle (d) Rhombus
- 8. In a parallelogram, which pair of angles is always supplementary?
(a) Opposite angles (b) Adjacent angles (c) Alternate angles (d) Corresponding angles

In the following questions 9 and 10, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

- (a) Both A and R are true and R is the correct explanation of A.
 - (b) Both A and R are true but R is not the correct explanation of A.
 - (c) A is true but R is false.
 - (d) A is false but R is true.
9. **Assertion (A):** A kite has one pair of opposite angles equal.
Reason (R): Adjacent sides of a kite are unequal.
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10. Assertion (A): All the parallelograms are rectangles.

Reason(R): All the rhombuses are parallelograms.

SECTION – B

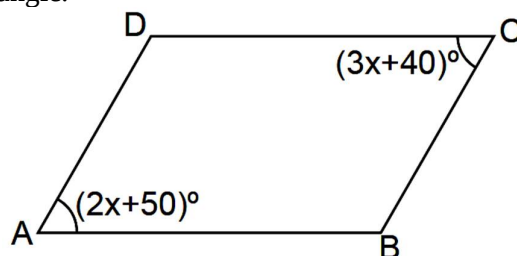
Questions 11 to 14 carry 2 marks each.

11. One angle of a quadrilateral is 120° and the remaining three angles are equal. Find the measure of each of the three equal angles.
12. How many sides does a regular polygon have, if each of its interior angles is 165° ?
13. Ram was designing a rangoli using polygon shapes. He created a pattern using a regular polygon in which each interior angle measured 120° . Find the number of sides of the polygon and classify it.
14. One angle of a parallelogram is of measure 70° . Find the measure of the remaining angles of the parallelogram.

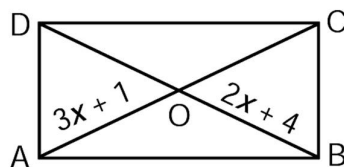
SECTION – C

Questions 15 to 17 carry 3 marks each.

15. The sum of the exterior angles of a polygon is one-ninth of sum of the interior angles. Find the number of sides of the polygon.
16. ABCD is a parallelogram where $m\angle A = (2x + 50^\circ)$ and $m\angle C = (3x + 40^\circ)$. (i) Find the value of x
(ii) Find the measure of each angle.

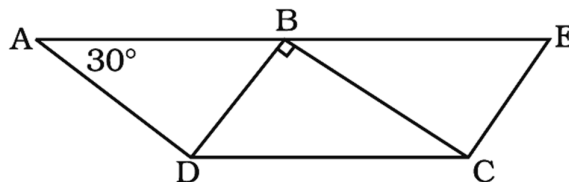


17. In the below figure, ABCD is a rectangle. Its diagonals meet at O. Find x , if $OA = 3x + 1$ and $OB = 2x + 4$.



OR

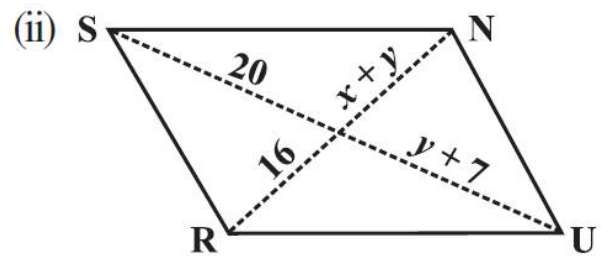
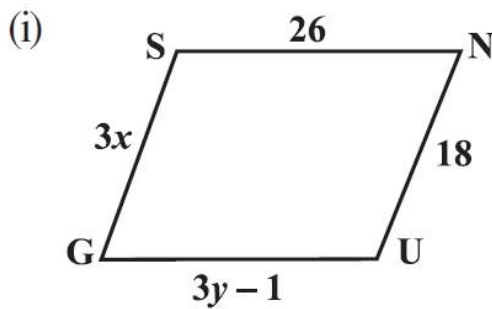
In the given figure, ABCD and BDCE are parallelograms with common base DC. If $BC \perp BD$, then find $\angle BEC$.



SECTION – D

Questions 18 carry 5 marks.

18. The following figures GUNS and RUNS are parallelograms. Find x and y . (Lengths are in cm) [2 + 3 marks]



SECTION – E (Case Study Based Questions)

Questions 19 to 20 carry 4 marks each.

19. A renowned flooring company is developing designer tiles shaped as special quadrilaterals. One new tile design has four equal-length sides, and when measured, its diagonals intersect at right angles but differ in length. The company's production engineer must classify this shape correctly for consistency in manufacturing and cataloging.

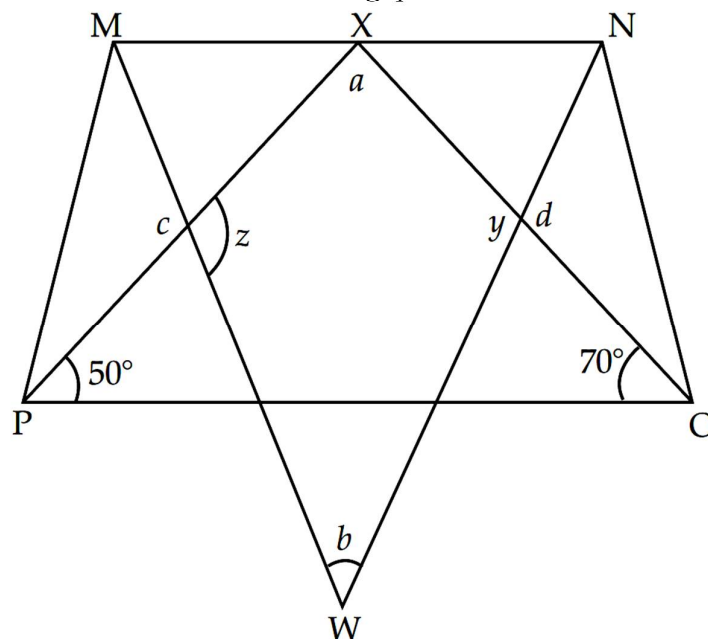
By using the above, give the answers of the following questions:

- What is the name of this quadrilateral?
- Mention any two properties of this shape.
- Could this tile be a square? Why or why not?
- Name another quadrilateral with perpendicular diagonals and unequal side lengths.



20. There is a trapezium MNOP, angle bisector of $\angle M$ and $\angle N$ meet at point W, and angle bisector of $\angle O$ and $\angle P$ meet at point X on side MN of trapezium MNOP.

By using the figure give the answers of the following questions:



- What is the value of a ? (1)
- What is the value of d ? ($1\frac{1}{2}$)
- What is the value of c ? ($1\frac{1}{2}$)