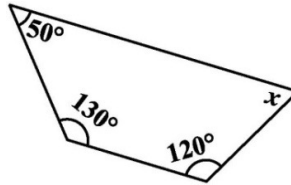


SAINIK SCHOOL GOPALGANJ
SUB: MATHEMATICS
CLASS-VIII

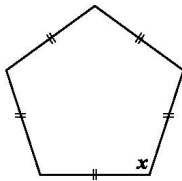
ASSIGNMENT -3

UNDERSTANDING QUADRILATERALS

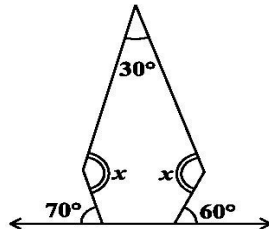
1. How many diagonals does each of the following have?
(a) A convex quadrilateral (b) A regular hexagon (c) A triangle
2. What is the sum of the measures of the angles of a convex quadrilateral?
Will this property hold if the quadrilateral is not convex? (Make a non-convex quadrilateral and try!)
3. What is a regular polygon? State the name of a regular polygon of (i) 3 sides (ii) 4 sides (iii) 6 sides
4. Find the angle measure x in the figures.



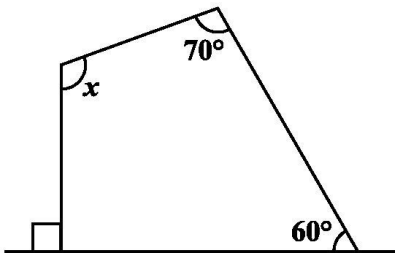
5. Find the angle measure x in the figures.



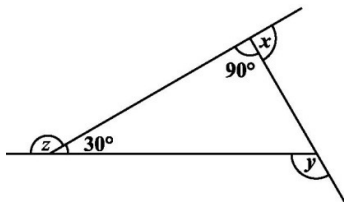
6. Find the angle measure x in the figures.



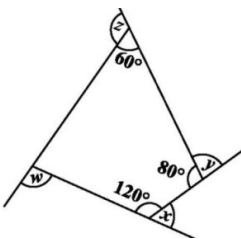
7. Find the angle measure x in the figures.



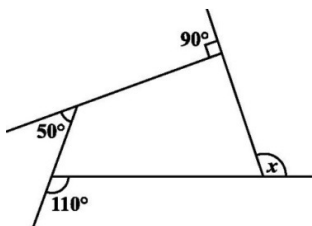
8. Find the angle measure x in the figures.



9. Find the angle measure x in the figures.

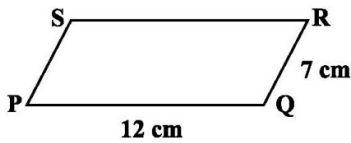


10. Find the angle measure x in the figure:

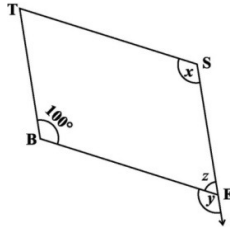


11. Find the number of sides of a regular polygon whose each exterior angle has a measure of 45° .
12. Find the measure of each exterior angle of a regular polygon of (i) 9 sides
(ii) 15 sides
13. How many sides does a regular polygon have if the measure of an exterior angle is 24° ?

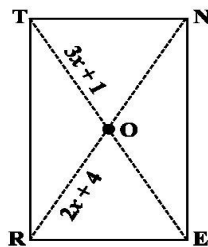
14. How many sides does a regular polygon have if each of its interior angles is 165° ?
15. Find the perimeter of the parallelogram PQRS



16. In Fig, BEST is a parallelogram. Find the values x , y and z .



17. RENT is a rectangle. Its diagonals meet at O. Find x , if $OR = 2x + 4$ and $OT = 3x + 1$.



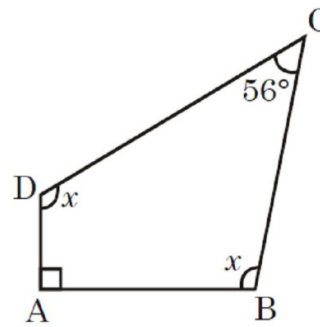
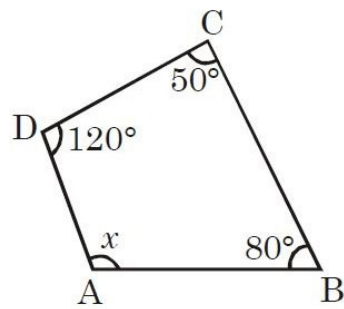
18. Find the number of sides of a regular polygon whose each exterior angle has a measure of 15° .

ASSIGNMENT QUESTIONS No.2

- Two adjacent angles of a parallelogram are as 2: 3. Find the measure of each of its angles.
- ABCD is a parallelogram in which $\angle A = 75^\circ$. Find the measure of each of the angles $\angle B$, $\angle C$ and $\angle D$. The external angle of a regular polygon is 20° . How many sides does it have? What is the measure of each interior angle? What is the total measure of its angles?
- Is it possible to have a regular polygon with measure of each exterior angle as 580° ? Why? Can it be an interior angle of a regular polygon?
- Find the measure of each exterior angle of a (i) Regular octagon (ii) Regular Decagon
- Find the perimeter of a parallelogram with sides 9cm and 5cm.

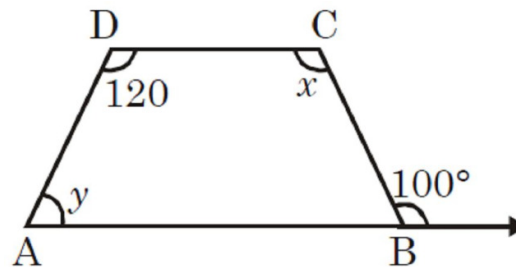
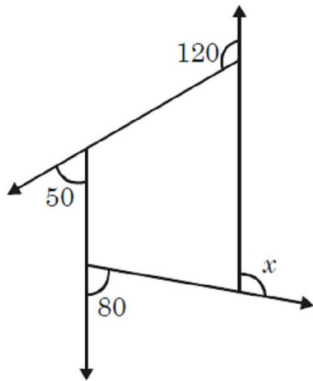
6. Find the perimeter of a rhombus whose diagonals are 16cm and 12cm
7. The adjacent angles of a parallelogram are in the ratio 5:4. Find all the angles.
8. If one of the angles of a parallelogram is a right angle, prove that it is a rectangle.
9. If all the angles of a parallelogram are equal. Prove that it is a rectangle.
10. Find the length of the diagonal of a rectangle whose length is 15cm and breadth is 8cm.
11. The measure of two adjacent angles of a quadrilateral are 110° and 50° and the other two acute angles are equal. Find the measure of each angle.
12. The five angles of a pentagon are in the ratio 5: 6: 7: 8:10. Find all the angles.
13. GOAL is a quadrilateral in which $GO \parallel AL$. If $\angle G = \angle O = 40^\circ$. What are the measures of $\angle A$ and $\angle L$.
14. ABCD is a rhombus whose diagonals AC and BD intersect at a point O. If side $AB = 10\text{cm}$ and diagonal $BD = 16\text{ cm}$, find the length of diagonal AC.
15. One of the diagonals of a rhombus is equal to one of its sides. Find the angles of the rhombus.
16. The diagonals of a rhombus ABCD intersect at O. If $\angle ADC = 120^\circ$ and $OD = 6\text{ cm}$, find (i) $\angle OAD$ (ii) side AB (iii) perimeter of the rhombus ABCD.
17. ABCD is a trapezium where AB parallel to CD. Measure of $\angle A = \angle B = 45^\circ$. Prove that $AD=BC$.
18. Three angles of a quadrilateral are in the ratio 3:4:5. The difference of the least and the greatest of these angles is 45. Find all the four angles of the quadrilateral.

19. In the below figure, ABCD is a quadrilateral. Find x .



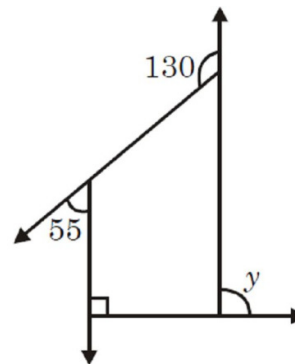
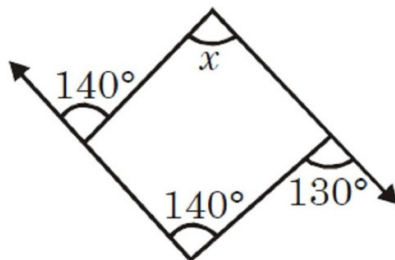
20. In the above right sided figure, ABCD is a quadrilateral. Find x .

21. In the below figure. Find x .



22. In the above right sided figure, ABCD is a quadrilateral in which $AB \parallel CD$. Find x and y .

23. In the below figure, find x



24. In the above right sided figure, find the value of y .

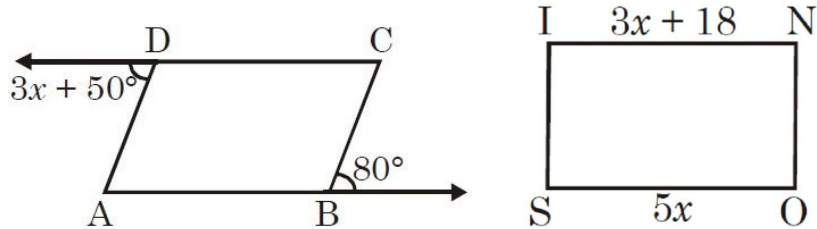
25. What is the measure of each exterior angle of a regular polygon of 10 sides?

26. How many sides does a regular polygon has if each of its interior angle is 160° ?

27. If the total angle sum of a polygon is 108° then how many sides does polygon has?

28. $ABCD$ is a parallelogram. The perimeter is 144 cm and $BC = 20$ cm then find AB .
29. The ratio of two adjacent sides of a parallelogram is 5:4. Its perimeter is 18 cm then, what is the length of the adjacent sides.
30. $PQRS$ is a parallelogram and diagonals PR and SQ bisect at O . If $PO = 3.5$ cm and $OQ = 4.1$ cm. What is the length of the diagonals?

31. In the below figure, $ABCD$ is a parallelogram. What is the value of x ?



32. In the above right figure, $SONI$ is a rectangle. What is the length of IN ?
33. In a parallelogram $ABCD$, $\angle B = \angle C$. What is the degree measure of $\angle B$ and $\angle C$?
34. In a parallelogram $ABCD$ the point of intersection of both diagonals AC and BD is O . If $AC = 16$ cm and $BD = 12$ cm then what is OA and OD .
35. $ABCD$ is a rhombus. If $AB = 4$ cm then what is the perimeter of $ABCD$?
36. $PQRS$ is a rhombus. If $PO = 4$ cm and $OQ = 3$ cm then what is $PR + SQ$?
37. $PQRS$ is a rhombus with $PQ = 10$ cm. If $OQ = 6$ cm then what is the length of the diagonal PR ?
38. In a rhombus $RSTU$ if $\angle R = 120^\circ$, then what is the measure of S .
39. $ABCD$ is a rhombus in which $AO = 4$ cm and $OB = 3$ cm. What is the length of the side of the rhombus?
1. State whether True or False
- All rectangles are squares.
 - All rhombuses are parallelograms.
 - All square are rhombuses and also rectangles.
 - All squares are not parallelograms.
 - All kites are rhombuses.
 - All rhombuses are kites.
 - All parallelograms are trapeziums.

- (h) All squares are trapeziums.
- PQRS is a parallelogram such that $m \angle R = 110^\circ$, then find $m \angle P$ and $\angle S$.
 - Two opposite angles of a parallelogram are $(5x - 8)^\circ$ and $(2x + 82)^\circ$. Find the measures of each angle of the parallelogram.
 - JKLM is a parallelogram. If $m \angle J = 70^\circ$, then find all other angles.
 - The exterior angle of a regular polygon is one-fifth of its interior angle. How many sides the polygon has? (4 Marks)

PRACTICAL GEOMETRY

- Construct a rhombus whose diagonals are 4.5cm and 6.2 cm.
- Draw a parallelogram whose adjacent sides are 2.8 cm and 4.8 cm.
- Draw a rectangle whose adjacent sides are 3 cm and 5 cm.
- Construct a quadrilateral ABCD, where $AB = 4.3$ cm, $BC = 5.2$ cm, $CD = 6.5$ cm, $\angle B = 105^\circ$ and $\angle C = 60^\circ$.
- Construct a quadrilateral PQRS where, $PQ = 5.4$ cm, $\angle P = 6^\circ$, $\angle Q = 105^\circ$, $\angle R = 75^\circ$ and $\angle S = 120^\circ$
- Construct a quadrilateral ABCD in which $AB = 5$ cm, $BC = 6.5$ cm, angle $A = 75^\circ$, angle $B = 105^\circ$ and angle $C = 120^\circ$.
- Draw a line segment of length 10 cm and divide it into 4 equal parts.
- Construct a quadrilateral WXYZ when $WX = 3.3$ cm, $XY = 4$ cm, $YZ = 4.1$ cm, $WZ = 3.6$ cm and $XZ = 5.5$ cm.
- Construct a rhombus whose diagonals are 6.2 cm and 8.4 cm.
- Construct a quadrilateral BEST, given $ES = 4.5$ cm, $BT = 5.5$ cm, $St = 5$ cm, the diagonal $BS = 5.5$ cm and diagonal $ET = 7$ cm. Find Angle E, Angle T and RE.
- Construct a parallelogram BEAT, $BE = 5$ cm, $EA = 6$ cm and Angle $R = 85^\circ$.
- Construct the following quadrilaterals:
 - Quadrilateral ABCD
 $AB = 4.5$ cm $BC = 5.5$ cm $AD = 4$ cm $AD = 6$ cm $AC = 7$ cm
 - Quadrilateral JUMP
 $JU = 3.5$ cm $UM = 4$ cm $MP = 5$ cm $PJ = 4.5$ cm
 $PU = 6.5$ cm
 - Parallelogram MORE
 $OR = 6$ cm $RE = 4.5$ cm $EO = 7.5$ cm
 - Rhombus BEST
 $BE = 4.5$ cm
 $ET = 6$ cm

PRACTICAL GEOMETRY

- Construct a quadrilateral PQRS where $PQ = 4$ cm, $QR = 6$ cm, $RS = 5$ cm, $PS = 5.5$ cm and $PR = 7$ cm.
- Construct the Quadrilateral ABCD where $AB = 4.5$ cm, $BC = 5.5$ cm, $CD = 4$ cm, $AD = 6$ cm and $AC = 7$ cm.

3. Construct Quadrilateral JUMP where $JU = 3.5$ cm, $UM = 4$ cm, $MP = 5$ cm, $PJ = 4.5$ cm and $PU = 6.5$ cm
 4. Construct Parallelogram MORE where $OR = 6$ cm, $RE = 4.5$ cm and $EO = 7.5$ cm
 5. Construct Rhombus BEST where $BE = 4.5$ cm and $ET = 6$ cm
 6. Construct a quadrilateral ABCD, given that $BC = 4.5$ cm, $AD = 5.5$ cm, $CD = 5$ cm the diagonal $AC = 5.5$ cm and diagonal $BD = 7$ cm.
 7. Construct quadrilateral LIFT where $LI = 4$ cm, $IF = 3$ cm, $TL = 2.5$ cm, $LF = 4.5$ cm and $IT = 4$ cm
 8. Construct Rhombus BEND where $BN = 5.6$ cm and $DE = 6.5$ cm
 9. Construct a quadrilateral MIST where $MI = 3.5$ cm, $IS = 6.5$ cm, $\angle M = 75^\circ$, $\angle I = 105^\circ$ and $\angle S = 120^\circ$.
 10. Construct Quadrilateral PLAN where $PL = 4$ cm, $LA = 6.5$ cm, $\angle P = 90^\circ$, $\angle A = 110^\circ$ and $\angle N = 85^\circ$
 11. Construct Parallelogram HEAR where $HE = 5$ cm, $EA = 6$ cm and $\angle R = 85^\circ$
 12. Construct a quadrilateral ABCD, where $AB = 4$ cm, $BC = 5$ cm, $CD = 6.5$ cm and $\angle B = 105^\circ$ and $\angle C = 80^\circ$.
 13. Draw a square of side 4.5 cm.
 14. Construct the kite EASY if $AY = 8$ cm, $EY = 4$ cm and $SY = 6$ cm. Which properties of the kite did you use in the process?
 15. Construct a rhombus whose diagonals are 5.2 cm and 6.4 cm long.
 16. Construct a rectangle with adjacent sides of lengths 5 cm and 4 cm.
 17. Construct a square READ with $RE = 5.1$ cm.
 18. Construct a parallelogram OKAY where $OK = 5.5$ cm and $KA = 4.2$ cm.
 19. Is it possible to construct a rhombus ABCD where $AC = 6$ cm and $BD = 7$ cm? Justify your answer.
 20. Construct Quadrilateral TRUE where $TR = 3.5$ cm, $RU = 3$ cm, $UE = 4$ cm, $\angle R = 75^\circ$ and $\angle U = 120^\circ$
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