DEVESH TEDIA CLASSES

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WORKSHEET-UNDERSTANDING QUADRILATERALS

Class 08 - Mathematics

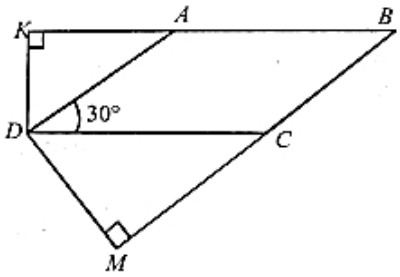
Section A

1. A quadrilateral has three acute angles. If each measures 80°, then the measure of the fourth angle is **[1]**

   a) 120° b) 105°

   c) 140° d) 150°

2. ABCD is a parallelogram. DK perpendicular to BA produced at K and DM perpendicular to BC produced at M. Find the measure of ∠KDM. **[1]**



   a) 140^o b) 200^o

   c) 150^o d) 90^o

3. If two adjacent angles of a parallelogram are $(5x - 5)^o$ and $(10x + 35)^o$, then the ratio of these angles is **[1]**

   a) 1 : 4 b) 1 : 3

   c) 2 : 3 d) 1 : 2

4. If PQRS is a parallelogram, then $\angle P - \angle R$ is equal to **[1]**

   a) 60° b) 0°

   c) 80° d) 90°

5. Which of the following is an equiangular and equilateral polygon? **[1]**

   a) Square b) Rhombus

   c) Rectangle d) Right triangle

6. The length of a rectangle is 8 cm and each of its diagonals measures 10 cm. Find its breadth. **[1]**

   a) 6 cm b) 5 cm

   c) 8 cm d) 10 cm

7. For which of the following figures, diagonals are perpendicular to each other? **[1]**

   a) Kite b) Trapezium

c) Parallelogram d) Rectangle

8. The two diagonals are not necessarily equal in a **[1]**

a) rectangle b) square

c) rhombus d) isosceles trapezium

9. What is the maximum number of obtuse angles that a quadrilateral can have? **[1]**

a) 2 b) 1

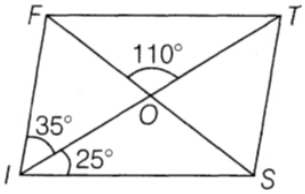
c) 4 d) 3

10. The diagonals of a quadrilateral intersect at right angles and it has exactly one axis of symmetry. The quadrilateral is a: **[1]**

a) kite b) Rectangle

c) rhombus d) square

11. In parallelogram FIST, the value of ∠OST is **[1]**



a) 70^o b) 80^o

c) 72^o d) 75^o

12. In a quadrilateral ABCD, if AO and BO be the bisectors of ∠A and ∠B respectively, ∠C = 70^o and ∠D = 30^o, then ∠AOB is **[1]**

a) 50^o b) 80^o

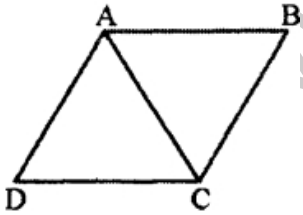
c) 40^o d) 100^o

13. The length of one diagonal of a rectangle is 6.2 cm, so the length of the other diagonal is _____. **[1]**

a) 8.4 cm b) 6.2 cm

c) 12.4 cm d) 3.1 cm

14. In the figure, ABCD is a rhombus, in which diagonal AC = side BC, then the value of ∠CDA is: **[1]**



a) 90^o b) 75^o

c) 60^o d) 45^o

15. Find the number of sides of a regular polygon whose each exterior angle has a measure of 15^o. **[1]**

a) 20 b) 24

c) 12 d) 30

16. A quadrilateral in which both pairs of opposite sides are parallel is a _____. **[1]**

a) rectangle
b) rhombus
c) parallelogram
d) square

17. Find the number of sides of a regular polygon whose each exterior angle has a measure of 30^o. **[1]**

a) 13
b) 15
c) 14
d) 12

18. The difference between an exterior angle of (n-1) sides regular polygon and an exterior angle of (n + 2) sided regular polygon is 6^o then find the value of n **[1]**

a) 15
b) 20
c) 13
d) 10

19. All the sides of a regular polygon are _____. **[1]**

a) not equal
b) parallel
c) not parallel
d) equal in length

20. The number of diagonals in a polygon of n sides is **[1]**

a) n (n - 3)
b) $\frac{n(n-2)}{2}$
c) $\frac{n(n-3)}{2}$
d) $\frac{n(n-1)}{2}$

21. The measures of the four angles of a quadrilateral are in the ratio of 1 : 2 : 3 : 4. What is the measure of fourth angle? **[1]**

a) 144^o
b) 150^o
c) 125^o
d) 135^o

22. The perimeter of a parallelogram is 150 cm. One of its side is greater than the other by 25 cm. Find the length of all the sides of the parallelogram. **[1]**

a) 70, 20, 50, 20
b) 50, 30, 20, 10
c) 25, 40, 20, 40
d) 50, 25, 50, 25

23. Find the measure of each exterior angle of a regular polygon of 8^o sides. **[1]**

a) 46^o
b) 36^o
c) 30^o
d) 45^o

24. The exterior angle of a regular polygon is one-third of its interior angle. How many sides does the polygon has? **[1]**

a) 13
b) 10
c) 9
d) 8

25. A quadrilateral has three acute angles each measuring 75^o, the measure of fourth angle is **[1]**

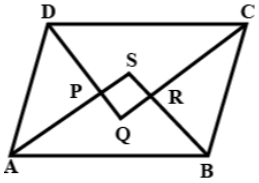
a) 130^o
b) 125^o
c) 145^o
d) 135^o

26. What is the sum of the measures of the angles of a convex quadrilateral? **[1]**

a) 45^o b) 90^o

c) 180° d) 360^o

27. The bisectors of angles of a parallelogram enclose a **[1]**



a) Rectangle b) Parallelogram

c) Square d) Rhombus

28. Which of the following can never be the measure of exterior angle of a regular polygon? **[1]**

a) 30° b) 22°

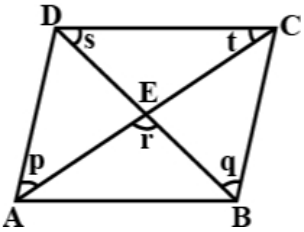
c) 45° d) 36°

29. A quadrilateral that is not a parallelogram but has exactly two equal opposite angles is : **[1]**

a) a kite. b) a trapezium

c) a rhombus. d) a square.

30. In the diagram, ABCD is a rhombus. AEC and BED are straight lines. **[1]**



p + q + r + s + t = ?

a) 200^o b) 360^o

c) 270^o d) 540^o

31. **Assertion (A):** Two adjacent sides of a rectangle are equal. The name of the quadrilateral is square. **[1]**

Reason (R): A square is a quadrilateral with four right angles.

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.

32. **Assertion (A):** Each square is a parallelogram. **[1]**

Reason (R): Each parallelogram is a square.

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.

33. **Assertion (A):** All the parallelograms are rhombuses. **[1]**

Reason (R): All the squares are rhombuses.

a) Both A and R are true and R is the b) Both A and R are true but R is not the

correct explanation of A.

c) A is true but R is false.

correct explanation of A.

d) A is false but R is true.

34. **Assertion (A):** Regular octagon is a regular polygon of 6 sides. **[1]**

Reason (R): A polygon that is equiangular and equilateral.

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.

35. **Assertion (A):** The diagonals of a square bisect each other at right angles. **[1]**

Reason (R): The diagonals of a square do not divide the whole square into four equal parts.

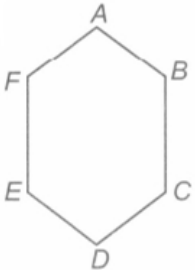
a) Both A and R are true and R is the correct explanation of A.

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.

36. The given polygon ABCDEF is _____. **[1]**



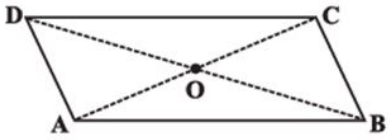
a) Convex

b) Hexagon

c) Both Hexagon and Convex

d) Concave

37. Given a parallelogram ABCD. OC = ... **[1]**



a) AD

b) OB

c) OD

d) OA

38. Match the following and choose the correct option. **[1]**

a. Two pairs of parallel sides	i. Rectangle
b. Parallelogram with 4 right angles	ii. Square
c. Parallelogram with 4 sides of equal length	iii. Rhombus
d. A rhombus with 4 right angles	iv. Paralleogram

a) (a) - (iv), (b) - (i), (c) - (iii), (d) - (ii)

b) (a) - (i), (b) - (ii), (c) - (iii), (d) - (iv)

c) (a) - (ii), (b) - (iv), (c) - (i), (d) - (iii)

d) (a) - (iv), (b) - (iii), (c) - (ii), (d) - (i)

39. A simple closed curve made up of only _____ is called a polygon. **[1]**

a) closed curves

b) curves

c) line segments

d) lines

40. A _____ is a quadrilateral whose opposite sides are parallel. **[1]**

a) All of these
b) parallelogram
c) rhombus
d) rectangle

41. Polygons that are _____ have no portions of their diagonals in their exteriors. **[1]**

a) opaque
b) convex
c) concave
d) regular

42. Which of the following figures do not satisfy any of the following properties? **[1]**

- All sides are equal.
- All angles are right angles.
- Opposite sides are parallel.

a) 

b) 

c) 

d) 

43. Identify the quadrilateral that have four sides of equal length. **[1]**

a) rectangle
b) trapezium
c) irregular hexagon
d) square

44. Identify the quadrilateral that has four right angles. **[1]**

a) kite
b) Trapezium
c) rhombus
d) square and rectangle

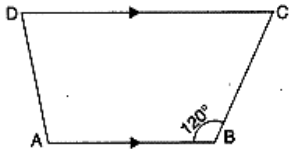
Section B

45. Explain how a square is **[2]**

i. a quadrilateral
ii. a parallelogram
iii. a rhombus

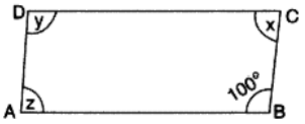
46. Quadrilateral EFGH is a rectangle in which J is the point of intersection of the diagonals. Find the value of x, if JF = 8x + 4 and EG = 24x - 8. **[2]**

47. Find m$\angle$C in the figure. If $\overline{AB} \parallel \overline{DC}$. **[2]**



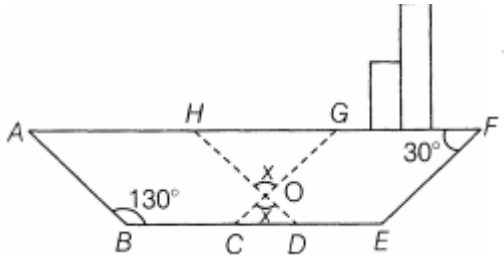
48. Two adjacent angles of a parallelogram have equal measure. Find the measure of each of the angles of the parallelogram. **[2]**

49. Consider the parallelogram. Find the degree values of the unknowns x, y, z **[2]**



Section C

50. In the following figure of a ship, ABDH and CEFG are two parallelograms. Find the value of x. **[3]**

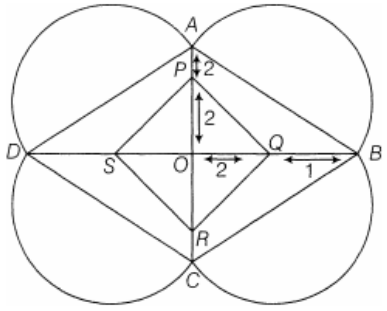


51. Name the quadrilaterals whose diagonals bisect each other. **[3]**

52. The angles of a hexagon are in the ratio 1:2:3:4:6:8. Find the measure of the smallest and the biggest angles. **[3]**

53. Sohan is designing a logo for his company which is in the shape of a regular 12-sided polygon. How many diagonals connect the interior angles of the polygon? How many triangles can be formed by connecting these interior angles? **[3]**

54. A rangoli has been drawn on the floor of a house. ABCD and PQRS both are in the shape of a rhombus. Find the radius of semi-circle drawn on each side of rhombus ABCD. **[3]**



55. Using the sum of exterior angles = 360^o of a polygon find the measure of interior polygon of : **[3]**

i. a regular octagon

ii. a regular 20-gon

56. In a parallelogram, the adjacent angles are $(2z - 25)^o$ and $(3z + 10)^o$. Determine the measures of all four angles in the parallelogram. **[3]**

57. How many diagonals will each of these polygons have? **[3]**

a Convex quadrilateral

b Nonagon

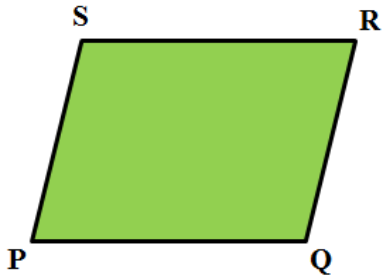
c Polygon with 17 sides

Section D

Question No. 58 to 62 are based on the given text. Read the text carefully and answer the questions: **[5]**

There are four sides and four angles in a parallelogram. Some of these are equal. There are some terms associated with these elements that you need to remember.

Given a parallelogram PQRS in the following figure:



1. PQ and RS, are **opposite sides**. PS and QR form another pair of **opposite sides.**
2. ∠P and ∠R are a pair of **opposite angles**; another pair of **opposite angles** would be ∠Q and ∠S
3. PQ and QR are **adjacent sides**. This means, one of the sides starts where the other ends. QR and RS are also **adjacent sides** .
4. ∠ P and ∠ Q are **adjacent angles**. They are at the ends of the same side. ∠Q and ∠R are also **adjacent** angles.

Please answer the following questions

58. Side PQ is opposite to which side?

a) PS b) QR

c) SR d) QP

59. Which of the following sides are adjacent?

a) PS and SR b) QP and PS

c) PS and QR d) PQ and RS

60. Which of following pair is of opposite angles?

a) ∠P and ∠Q b) ∠P and ∠R

c) ∠S and ∠R d) ∠P and ∠S

61. The angle opposite to ∠Q is ∠ _____.

62. Side PS is opposite to side QR.

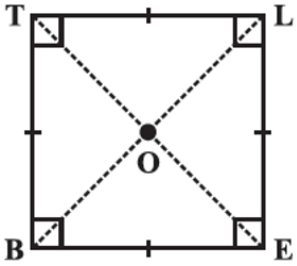
a) True b) False

Question No. 63 to 67 are based on the given text. Read the text carefully and answer the questions: **[5]**

A square is a rectangle with equal sides. This means a square has all the properties of a rectangle with an additional requirement that **all the sides have equal length**.

The square, like the rectangle, has diagonals of equal length. In a rectangle, there is no requirement for the diagonals to be perpendicular to one another but **in a square, the diagonals are perpendicular**

to one another.



In a square the diagonals.

i. bisect one another (square being a parallelogram)

ii. are of equal length (square being a rectangle) and

iii. are perpendicular to one another.

63. In the given square BELT If BL = 10 cm then TE =?

a) 6 cm b) 8 cm

c) 9 cm d) 10 cm

64. In the given square BELT If BE = 5 cm then BT =?

a) 6 cm b) 10 cm

c) 5 cm d) 9 cm

65. In the given square BELT ∠LOE =?

a) 110^o b) 108^o

c) 90^o d) 120^o

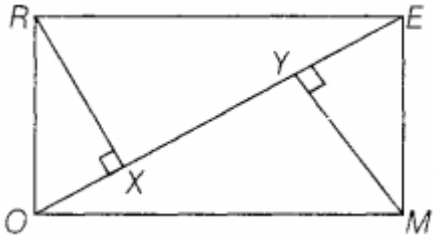
66. The Value of ∠BOE = _____ degree.

67. In the given square BELT OB = OL.

a) True b) False

68. Length of the diagonal AC of a square ABCD is 10 cm. find the length of each side of the sqaure. **[5]**

69. A rectangle MORE is shown below. **[5]**



Answer the following questions by giving an appropriate reason.

i. Is RE = OM

ii. Is ∠MYO = ∠RXE?

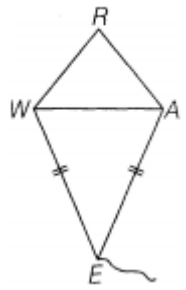
iii. Is ∠MOY = ∠REX?

iv. Is △MYO ≅ △RXE?

v. Is MY = RX?

70. In a quadrilateral PQRS, ∠P = 50^o, ∠Q = 50^o, ∠R = 60^o. Find ∠S. Is this quadrilateral convex or concave? **[5]**

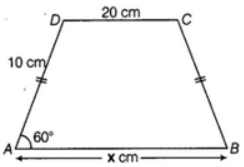
71. In kite EARW, ∠WEA = 70° and ∠ARW = 80°. Find the remaining two angles. **[5]**



72. If each interior angle is 160°, what is the name of the polygon? **[5]**

73. In parallelogram ABCD, the angle bisector of ∠A bisects BC. Will angle bisector of B also bisect AD? Give reason. **[5]**

74. In the following figure, AB || DC and AD = BC. Find the value of x. **[5]**



75. In parallelogram LOST, SN⊥OL and SM⊥LT. Find ∠STM, ∠SON and ∠NSM. **[5]**