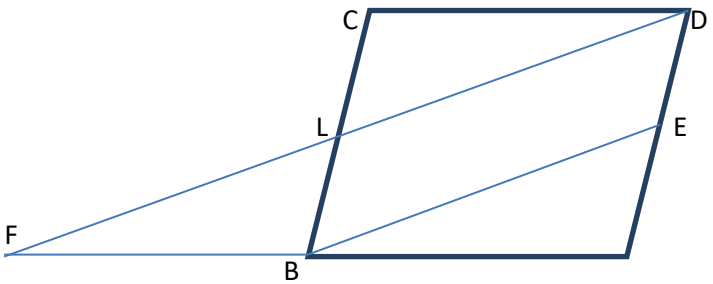
ST. THOMAS SCHOOL,INDIRAPURAM
WORKSHEET, CLASS-IX (OCTOBER,2019-20)
LEVEL-1

1. Find the area of Quadrilateral ABCD in which AD=24 cm, $\angle BAD = 90^0$ and BCD forms an equilateral triangle whose each side is equal to 26 cm.
2. Two parallel sides of trapezium are 60 cm, 77 cm and other sides are 25 cm and 26 cm. Find the area of trapezium.
3. Find the area of an isosceles triangle having unequal side as 12 cm and each of the equal sides as 24 cm .Also, find its altitude corresponding to the unequal side.
4. Find the area of an equilateral triangle having a side of 20 cm in length. Also find its altitude.

5. The diagonals of a rectangle ABCD meet at O. If $\angle BOC = 44^0$, find $\angle OAD$.
6. In a ΔABC, X and Y are the points on AB and BC respectively. If BX = $\frac{1}{2}$AB and BY = $\frac{1}{2}$ BC and AB=BC. Show that AY = CX.
7. If the bisectors of two adjacent angles A and B of a quadrilateral ABCD intersect at a point O such that ∠C + ∠D = k ∠AOB, then find the value of k.
8. In a ΔABC, right angled at B. Given that AB = 9 cm, AC = 15 cm and D, E are the mid points of the sides AB and AC respectively, find
   i) The length of BC
   ii) The area of ΔADE

9. ABCD is a parallelogram. If E is the mid point of BC and AE is the bisector of ∠A. Prove that AB = $\frac{1}{2}$AD
10. ABCD is parallelogram and E is the mid point of AD. DL||BE meets AB produced at F. Prove that B is the mid point of AF and EB = LF.



Fill in the blanks :- (Q -11 to Q-15)

11. The figure obtained by joining mid points of the sides of a rhombus taken in order is _____

12. The diagonals AC and BD of a parallelogram ABCD intersect each other at the point O. If

    $\angle DAC = 30^0$ and $\angle AOB = 72^0$,then $\angle DBC$ =_____

13. If the diagonals of a quadrilateral bisect one another at right angles, then it is a _____

14. PQRS is a parallelogram. The angle bisectors of ∠P and ∠S meet at O. The measure of ∠POS

    is _____

15. The figure obtained by joining mid points of the sides of a quadrilateral taken in order is _____

Choose the correct answer : (Q-16 to Q-20)

16. The length of each side of an equilateral triangle having an area of $16\sqrt{3}$ cm^2 is

a) 10 cm b) 4 cm c) 6 cm d) 8 cm

17. If the sides of a triangle are doubled , then its area

a) remain same b) is doubled c) becomes three times d) becomes four times

18. The area of a right angled triangle whose legs are 12cm and 14 cm is

a) 168 cm^2 b) 84 cm^2 c) 42 cm^2 d) 80 cm^2

19. The altitude of an equilateral triangle is $5\sqrt{3}$ cm. The area is

a) $50\sqrt{3}$ cm^2 b) $225\sqrt{3}$ cm^2 c) $40\sqrt{3}$ cm^2 d) $25\sqrt{3}$ cm^2

20. The length of hypotenuse of an isosceles right triangle with area 72 cm^2 is

a) 12 cm b) $12\sqrt{2}$ cm c) 24 cm d) 12.5 cm

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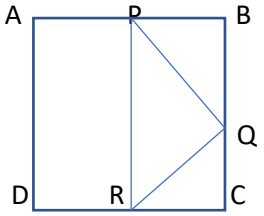
LEVEL-2

1. ABCD is a parallelogram. If the bisectors DP and CP of angles D and C meet at P on side AB, then show that P is the mid point of side AB.
2. ABCD is a square whose diagonals intersect at O. Calculate ar(ΔAOB) : ar(ABCD)
3. ABCD is a square. If ∠PQR = 90^0 and PB = QC = DR, Prove that ∠QPR = 45^0



4. ABCD is a trapezium with AB||DC. X and Y are the midpoints of AD and BC respectively . If CD = 30cm and AB = 50cm, show that ar(DCYX) = $\frac{7}{9}$ ar(XYBA)
5. E, F are mid points of non-parallel sides AD, BC of a trapezium ABCD. Prove that

   EF|| AB and EF = $\frac{1}{2}$ (AB + CD) ii) If AB = 12cm, EF = 14cm, find CD.

6. The perimeter of a triangular park is 300cm and its sides are in the ratio 5 : 12 : 13. Find the length of the perpendicular from the opposite vertex to the side whose length is longest.
7. If the sides of rhombus are 6cm each and one diagonal is 8cm. Find the height of the rhombus.
8. Find the area of an isosceles triangle whose one side is 10cm greater than each of its equal sides and its perimeter is 100cm.
9. Find the percentage decrease in the area of a triangle if each of its side is halved.
10. A field is in the shape of a trapezium having parallel sides 90 m and 30 m. These sides meet the third side at right angles. The length of the fourth side is 100m. If it costs Rs.4 to plough 1 m^2 of the field, find the total cost of ploughing the field.