SA-1 MATHEMATICS PAPER-02

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I.**Choose the correct answer**: **8X1=8**

1. ΔABC and ΔDEF are similar triangles such that ∠A =47^0 and ∠E=83^0 then ∠C =?

A)50^0 B) 60^0 c) 70^0 D) 80^0

2.The common difference of AP -10,-7,-4 , ...

A)2 B)3 C)4 D)5

3. The graphical representation of two pairs of linear equation when they are satisfy the condition a1/a2 =b1/b2 =c1/c2 .

A)Parallel lines B)Coincident c)Intersecting lines D)A bundle of line.

4. The radius of circle is 21cm then its perimeter is .....

A)88cm B)132cm C)154cm D)308cm

5.Formula used to find distance between $A(x_1, y_1)$ and $B(x_2, y_2)$ is .....

A) $\sqrt{(x_2-x_1)^2 + (y_2-y_1)^2}$ B)$\sqrt{(x_2+x_1)^2 + (y_2+y_1)^2}$ c) $\sqrt{(x_2-x_1)^2 - (y_2-y_1)^2}$ D) $\sqrt{(x_2+x_1)^2 + (y_2-y_1)^2}$

6.The prime factor of 210 can be expressed as .....

A)2^2x3x5x7 B)2x3x5x7 C)2x3^2x7 D)2x5x7^2

7.If S_5=35 and S_4=22 then T_4= .....

A)35 B)22 C)13 D)57

8.The region bounded by a chord and an arc is called .....

A)Segment B)Radius C)Diameter D)Sector

II. **Answer the following questions**: **8X1=8**

9.Using Euclid's division algorithm find the HCF of 135 and 225.

10.Write section formula.

11.Find the area of circle of radius 7cm.

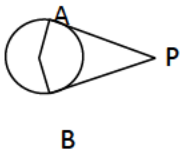
12.Define sector.

13.Write the AP whose first term is 2 and common difference is 4.

14.In ΔABC ∠B=90^0 , AC=13cm and BC=5cm then find AB.

15.In the figure if the length of the tangent Ap =6cm,what is the length of another tangent BP?

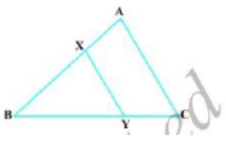
16.What is the area of quadrant of a circle?



III. **Answer the following questions**: **2X8=16**

17.Find the area of a quadrant of a circle whose circumference is 22cm.

18.Find the 20th term from the last term of the AP 3,8,13 , ... 253.



19.In the figure LM‖ CB and LN‖CD. Prove that $\frac{AM}{AB} = \frac{AN}{AD}$

20.Prove that 2-$\sqrt{3}$ is irrational number.

21.Solve for X and Y , X+Y= 5 and 2X-3Y=4

22.Divide the line segment AB=7.6cm in the ratio 5:8

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23.Prove that in two concentric circles the chord of the larger circle which touches the smaller circle is bisected at the point of contact.

24.Find the area of the sector of a circle with radius 4cm and of angle 30^0.

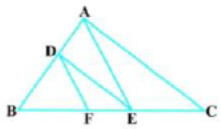
IV. **Answer the following questions**: **3x9=27**

25.Check whether (5,-2) (6,4) and (7,-2) are the vertices of an isosceles triangle.

26.Two tangents TP and TQ are drawn to a circle with centre O from an external point T. Prove that $\angle PTQ = 2\angle OPQ$.

27.The sum of the digits of a two digit number is 9.Also nine times this number is twice the number obtained by reversing the order of the digits. Find the number.

28.If $T_n=3+4n$ find the sum of the first fifteen terms.



29.In the figure DE||AC and DF||AE. Prove that $\frac{BF}{FE} = \frac{BE}{EC}$

30.Prove that the lengths of tangent drawn from an external point to a circle are equal.

31.ABC is an equilateral triangle of side 2a.Find each of its altitudes.

32. Construct an isosceles triangle whose base is 8cm and altitude 4cm and the another triangle whose sides are $1\frac{1}{2}$ times the corresponding sides of the isosceles triangle.

33.The cost of 2 pencils and 3 erasers is Rs 9 and the cost of 4 pencils and 6 erasers is Rs 18.Find the cost of each pencil and each eraser.

V. **Answer the following questions**: **4x4=16**

34.State and prove AA similarity theorem.

35.Solve graphically x-y=8 and 3x-3y=16.

36.An aero plane leaves an airport and flies due north at a speed of 100km/ hr. At the same time another aero plane leaves the same airport and flies due west at a speed of 1200km/hr. How far apart will be the two planes after $1\frac{1}{2}$ hours?

37.Find the Coordinates of the points of trisection of the line segment joining the points A(2,-2) and B(-7,4).

VI. **Answer the following questions**: **5x1=5**

38.Four terms in AP have sum 28.Product of the extreme terms and that of the middle terms are in the ratio 5:6.Find the largest term.