**KENDRIYA VIDYALAYA SANGATHAN ,LUCKNOW REGION**

**PREBOARD EXAMINATION-2019-20**

**CLASS-X SUB-BASIC MATHS**

**TIME-3HRS M.M-80**

 ***GENERAL INSTRUCTIONS: QUESTIONS 1-20(1MARK),21-26(2MARKS), 27-34(3Marks),35-40(4MARKS).***

**SECTION-A(1x20 marks)**

 **M.C.Q Choose right option of the following;**

**Q1) In an A.P,if a=3.5,d=0,n=101,then an=**

 a)0 b)3.5 c)104.5 d)103.5

**Q2) The surface area of sphere is 616cm2,its radius is -------.Use( π=22/7)**

 a)19 b)7 c)-7 d)14

**Q3) The pair of equations 2x-3y=1 and 3x-2y=4 has---------**

 a)One solution b)two solution c)no solution d)many solution

**Q4) If tanA=cot(30°+A),then A=**

1. 45° b) 30° c) 135° d)60°

**Q5) Sides of a triangle are given below, which of these is a right triangle?**

 a)7cm,5cm,24cm b)34cm,30cm,16cm c)4cm,3cm,7cm d)8cm,12cm,14cm

**Q6) Which of the following is a solution of the quadratic equation 2x2+x-6=0?**

 a)x=2 b)x= -12 c)x=3/2 d)x = -3

**Q7) The common point where tangent to a circle touches the circle is called-----------**

 a)secant b)point of contact c)tangent d)circle

**Q8) The perimeter of a sector of angle 45°of a circle with radius 7cm is**

 a)19cm b)19.5cm c)19/3cm d)77cm

**Q9) The value of tan48°tan23°tan42°tan67° is**

 a)1 b)9 c)8 d)0

**Q10) The L.C.M of smallest two digit composite number and smallest composite number is**

 a)44 b)4 c)12 d)20

Q.11- Find the value of k for which the points (7,-2), (5, 1) and (3, k) are collinear.

Q.12- Find the 8th term of 117, 104, 91, 78 …………..

Q.13 – Find the value of cos180/sin 720.

Q.14 – Give two different examples of pair of similar figures.

Q.15 – If AB is a tangent drawn from a point A to a circle with centre O and BOC is diameter of the circle such that angle AOC = 1200, than find angle OAB .

Q.16- Find the angle of elevation of the sun’s altitude when the height of shadow of a vertical pole is equal to its height .

Q.17- If the sum of the zeroes of the polynomial f (x) = 2x3 – 3kx2 + 4x – 5 is 6, then find the value of k.

Q.18- State Euclid`s division lemma.

Q.19- Find the value of K for which the system of equations x – 2y = 3 and 3x + ky = 1 has a unique solution.

Q20. What is the HCF of 23 x 5 and 22 x 52 ?

**Section-B(2x6 Marks)**

Q.21- How many three digit numbers are divisible by 7 ?

Q.22- Find the zeroes of the following quadratic polynomial : 6X2-3-7X.

Q.23- Find two consecutive positive integers . Sum of whose square is 365.

Q.24- Show that the points (-4,0),(4,0) and (0,3) are vertices of an isosceles triangle .

Q.25- Find the Sums given below :

 34+32+30……….. +10.

Q.26- If secA=25/7, then find the value of tanA.

**Section-C(3x8 Marks)**

Q.27- Prove that 3+5√2 is an irrational numbers.

Q.28-Formulate the following problem as a pair of linear equations and hence find their solutions: Ritu can row downstream 20km in 2hours and upstream 4km in 2hours .Find her speed of rowing in still water and the speed of the current.

Q.29- Find the area of triangle whose vertices are (1,-1) ,(-4,6) and (-3,-5).

Q.30- Prove that the parallelogram circumscribing a circle is a rhombus.

Q.31- A cubical block of side 7cm is surmounted by a hemisphere. What is the greatest diameter the hemisphere can have? Find the surface area of the solid.

Q.32-Metallic spheres of radii 6cm , 8cm and 10cm respectively are melted and recasted in to a single solid sphere. Find the surface area of solid sphere formed (take, π=3.1).

Q.33- A quadrilateral ABCD is drawn to circumscribe a circle. Prove that AB + CD = AD + BC.

Q.34- If sec 4A = cosec (A-20), where 4A is an acute angle, Find the value of A.

**Section-D(4x6 Marks)**

Q.35- Find all the zeros of the polynomial 2x4 + 7x3 – 19x2 -14x +30, if two of its zeros are √2 and -√2.

Q.36- The angle of elevation of the top of a building from the foot of the tower is 300 and the angle of elevation of the top of the tower from the foot of the building is 600. If the tower Is 50m high, find the height of the building.

Q.37- Draw the graph of the following equations x+y = 5, 3x-y =3 .Shade the region bounded by these lines and x-axis.

Q.38- Draw a triangle ABC with side BC = 6cm, AB = 5cm and angle ABC = 600. Then construct a triangle whose sides are 3/4 of the corresponding sides of the triangle ABC.

Q39)State and prove converse of Pythagoras theorem.

Q40) Find the area of the shaded region where the radii of the two concentric circles with centre O are 7cm and 14cm respectively and $<$AOC=40$°$



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 CLASS –X

MATHS (BASIC)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Chapters | Mark 1 | Marks 2 | Marks 3 | Marks 4 |
| Real Numbers | 3(1) | ---- | 1(3) | ---- |
| Polynomial | 1(1) | 1(2) | ----- | 1(4) |
| Pair of linear equations | 2(1) | ----- | 1(3) | 1(4) |
| Quadratic Equations | 1(1) | 1(2) | ----- | ------ |
| A.P | 2(1) | 2(2) | ---- | ----- |
| Triangles | 2(1) | ------ | ---- | 1(4) |
| Coordinate geometry | 1(1) | 1(2) | 1(3) | ---- |
| Trigonametry | 3(1) | 1(2) | 1(3) | ------ |
| Application to trigonametry | 1(1) | ----- | ---- | 1(4) |
| Circle | 2(1) | ----- | 2(3) | ---- |
| Construction | --- | ----- | ----- | 1(4) |
| Area related to circle | 1(1) | ----- | ------ | 1(4) |
| Surface area and volumes | 1(1) | ----- | 2(3) | ------- |

 Marking Sheet Basic Mathematics

 Section-A

Q1) An=a+(n-1)d ½

An=3.5 ½

Q2)4πR2 =616 ½

R=7 ½

Q3)one solution (a) 1

Q4)Cot(90-A)=Cot(30+A) ½

 A=30°

Q5)34cm,30cm,16cm (b) 1

Q6)2x2+4x-3x-6=0 ½

 X=3/2 ½

Q7)point of contact (b)

Q8)2r+2πrθ/360 ½

 14+5.5=19.5cm ½

Q9)1 (a)

Q10)10,4

 L.C.M =2x2x5=20

Q11)x1(y2-y3)+x2(y3-y1)+x3(y1-y2)=0 1/2

 K=4 ½

Q12)A8=a+(8-1)d ½

 A8=26 ½

Q13)Sin(90-18)/Sin72 =1 1

Q14)All equilateral triangles. 1

 All squares.

Q15)Angle AOB=30° 1

Q16)45° 1

Q17)6=-(-3k)/2 ½

 K=4 ½

Q18)a=bq+r, 0<r<b 1

Q19)K=-6 1

Q20)HCF=20 1

 Section-B

Q21)105,112,119-----------,994 1/2

 994=105+(n-1)7 1

 n = 128 ½

Q22)6x2-9x+2x-3 1

 X=3/2 , x=-1/3 1

Q23)x2+(x+1)2=365 ½

 X2+x-182=0 1

 X=13 ½

Q24) (-4,0)

 ( 4,0) (0,3) Distance b/w two point=√(x2-x1)2+(y2-y1)21

 Yes,It is isosceles triangle 1

Q25)a=34,d=-2

 10 = 34+(n-1)(-2) 1

 n =13

 Sn=13/2 (34+10)=286 1

Q26)SecA=25/7

 P 25 P2=252-72 P=24 1

 A TanA=24/7 1

Q27)3+5√2 = a/b ,Where a,b are coprime integer. 1

 a-3b/5b =√2 1

 √2 is irrational no. So it is irrational no. 1

Q28)20/(x+y) = 2, 4/(x-y) = 2 2

 X=6km/h , y=4km/h 1

Q29)1/2[ x1(y2-y3)+x2(y3-y1)+x3(y1-y2)]

 Putting value 2

 Area =24 1

Q30)Correct figure 1

 Correct prove. 2

 31)Diameter =7cm 1

Surface area=6a2+2πr2-πr2 1

 =6x49+22/7 x7/2x7/2

 = 2 9 4 + 38.5= 332.5cm2 1

Q32)r13+r23+r33=R3 1

 R=12cm

 Surface area=4πR2 1

 =1785.6cm3 1

Q33)Correct figure 1

 Correct prove 2

Q34) cosec (90-4A) =Cosec(A-20) 1

 A=22° 2

Q35) Given polynomial divided by X2-2 1

 Correct division. 2

 X=3/2 , x=-5 1

Q36)Correct figure 1

Height=50/3 m 3

 Q37) Corect graph 3

 Shaded portion 1

Q38)Draw triangle ABC 2

 Its similar Triangle 2

Q39)Statement 1

 Correct prove 3

 Q40)πθ/360 (r12-r22) 2

 Area= 154/3 cm2 2