DWARKA INTERNATIONAL SCHOOL

CLASS – XI , MATHEMATICS, REVISION WORKSHEET

NOTE: Do the Revision worksheet in your register and submission date: 14/11/2023. The link for the same will be shared in class group. Submit the worksheet in Pdf format.

Q1. Find mean, mean deviation about mean and standard deviation for the following distribution:

Marks	0-10	10-20	20-30	30-40	40-50	50-60
No of students	2	10	20	15	10	3

Q2. Find mean, and standard deviation for the following distribution:

X	6	10	14	18	24	28	30
F	2	4	7	12	8	4	3

Q3. Find mean deviation about median and standard deviation for the following distribution:

age	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55
No of persons	5	6	12	14	26	12	16	9

Q4. Find the variance of the first n natural numbers. Also write the standard deviation.

Q5. Find the equation of the line passing through (12,-2) and is such that the x – intercept exceeds the y – intercept by 4.

Q6.A line perpendicular to the line segment joining (6,0) and (5,-4) divides it in the ratio 1 : n internally. Find its equation.

Q7. The vertices of Δ ABC are A (4,2) , B(-4,6) and C (8,8) . Find the equation of the median through the vertices C and B.

Q8. If the angle between two lines is $\frac{\pi}{4}$ and slope of one of the line (l_1) is $\frac{1}{2}$, find the slope of other line (l_2). Also find the equation of line (l_2) if it passes through (1,-2) .

Q9. The vertices of Δ ABC are A (6,4) , B(-4,6) and C (6,6) . Find the equation of the median through the vertices A and C.

Q10. Find the equation of a line passing through (3,-2) and inclined at an angle of 60 degree with the line, $\sqrt{3}$x + y = 1.

Q11. Find the domain and range of the following functions:

1) f(x) = $\sqrt{25 - x^2}$ 2) f(x) = $\frac{1}{2x-7}$

Q12. The ratio of the A.M and G.M of two positive numbers a and b is m : n.

Show that, a : b = (m + $\sqrt{m^2 - n^2}$) : (m - $\sqrt{m^2 - n^2}$)

Q13. Prove that, sin3x + sin2x - sinx = 4sinx . cos $\frac{x}{2}$ .cos $\frac{3x}{2}$

Q14. Find the $\sin\frac{x}{2}$, $\cos\frac{x}{2}$ and $\tan\frac{x}{2}$ in each of the following :

1. tanx = $-\frac{4}{3}$, x in quadrant II
2. cosx = $-\frac{1}{3}$, x in quadrant III

Q15. Find the conjugate and modulus of $\frac{(3-2i)(2+3i)}{(1+2i)(2-i)}$

Q16. Find the number of permutations of the letters of the word ENGINEERING . How many of these begin with E and end with G?

Q17. Find the equation of the circle whose centre is same as the centre of the circle $x^2 + y^2 + 6x + 2y + 1 = 0$, and passing through the point (-2,-1).

Q18. Find the equation of the circle passing through the points (5,3) , (1,5) , (3 , -1).

Q19. Show that the following points (2,0) , (-1,3) , (-2,0) , (1,-1) are concyclic.

Q20. Find the equation of circle with centre at (2,3) and radius 5 units.

Q21. . Find the number of ways in which 5 cards can be selected out of deck of 52 cards , if at least one of the 5 cards is an ace.

Q22. A candidate is required to answer 7 questions out of 12 questions which are divided in two groups, each containing 6 questions. He is not permitted to attempt more than 5 questions from either group. In how many ways can he choose the 7 questions?

Q23. If R is a relation on N the set of natural numbers , defined by , R = { (x,y) : x + 2y =9} . Write the relation R^{-1} .

Q24. Find the sum of n terms : 1.4.7+2.5.8+ 3.6.9+----------

Q25. In a college of 400 students, 180 students take Mathematics as major subject , 160 take Physics as major subject and 150 take neither.

Find **a)** How many students take both mathematics and physics as major subjects?

b) How many take Mathematics as major subject but not Physics?