

DELHI PUBLIC SCHOOL, JAMMU

SESSION: 2021-22

ASSIGNMENT

Class : XI

Subject: Mathematics

Month :August

- 1) If A, B and C are any three sets, then $A - (B \cup C)$ is equal to
 - (a) $(A - B) \cup (A - C)$
 - (b) $(A - B) \cup C$
 - (c) $(A - B) \cap C$
 - (d) $(A - B) \cap (A - C)$
- 2) $(A')' = ?$
 - (a) $\cup - A$
 - (b) A'
 - (c) \cup
 - (d) A
- 3) $A - B$ is read as?
 - (a) Difference of A and B of B and A
 - (b) None of the above
 - (c) Difference of B and A
 - (d) Both a and b
- 4) Which of the following sets are null sets
 - (a) $\{x: |x| < -4, x \in \mathbb{N}\}$
 - (b) 2 and 3
 - (c) Set of all prime numbers between 15 and 19
 - (d) $\{x: x < 5, x > 6\}$
- 5) If $R = \{(2, 1), (4, 3), (4, 5)\}$, then range of the function is?
 - (a) Range $R = \{2, 4\}$
 - (b) Range $R = \{1, 3, 5\}$
 - (c) Range $R = \{2, 3, 4, 5\}$
 - (d) Range $R = \{1, 1, 4, 5\}$
- 6) In a class of 120 students numbered 1 to 120, all even numbered students opt for Physics, whose numbers are divisible by 5 opt for Chemistry and those whose numbers are divisible by 7 opt for Math. How many opt for none of the three subjects?
 - (a) 19
 - (b) 41
 - (c) 21
 - (d) 57
- 7) Two finite sets have N and M elements. The number of elements in the power set of first set is 48 more than the total number of elements in power set of the second set. Then the value of M and N are
 - (a) 7, 6
 - (b) 6, 4
 - (c) 7, 4
 - (d) 6, 3
- 8) The range of the function $f(x) = 3x - 2$, is
 - (a) $(-\infty, \infty)$

- (b) $\mathbb{R} - \{3\}$
(c) $(-\infty, 0)$
(d) $(0, -\infty)$
- 9) If A, B, C be three sets such that $A \cup B = A \cup C$ and $A \cap B = A \cap C$, then,
(a) $B = C$
(b) $A = C$
(c) $A = B = C$
(d) $A = B$
- 10) In a class of 50 students, 10 did not opt for math, 15 did not opt for science and 2 did not opt for either. How many students of the class opted for both math and science.
(a) 24
(b) 25
(c) 26
(d) 27
- 11) A function $f(x)$ is said to be an odd function if
(a) $f(-x) = f(x)$
(b) $f(-x) = -f(x)$
(c) $f(-x) = k * f(x)$ where k is a constant
(d) None of these
- 12) A relation R is defined from the set of integers to the set of real numbers as $(x, y) \in R$ if $x^2 + y^2 = 16$ then the domain of R is
(a) $(0, 4, 4)$
(b) $(0, -4, 4)$
(c) $(0, -4, -4)$
(d) None of these
- 13) The domain of the function $f(x) = 1/(x^2 - 3x + 2)$ is
(a) $\{1, 2\}$
(b) \mathbb{R}
(c) $\mathbb{R} - \{1, 2\}$
(d) $\mathbb{R} - \{1, -2\}$
- 14) Let $A = \{-2, -1, 0\}$ and $f(x) = 2x - 3$ then the range of f is
(a) $\{7, -5, -3\}$
(b) $\{-7, 5, -3\}$
(c) $\{-7, -5, 3\}$
(d) $\{-7, -5, -3\}$
- 15) The value of $\sqrt[3]{(-25)} + 3\sqrt[3]{(-4)} + 2\sqrt[3]{(-9)}$ is
(a) $13i$
(b) $-13i$
(c) $17i$
(d) $-17i$
- 16) if z lies on $|z| = 1$, then $2/z$ lies on
(a) a circle
(b) an ellipse
(c) a straight line
(d) a parabola
- 17) The least value of n for which $\{(1 + i)/(1 - i)\}^n$ is real, is
(a) 1
(b) 2

- (c) 3
(d) 4
- 18) The value of i^{-999} is
(a) 1
(b) -1
(c) i
(d) -i
- 19) The value of x and y if $(3y - 2) + i(7 - 2x) = 0$
(a) $x = 7/2, y = 2/3$
(b) $x = 2/7, y = 2/3$
(c) $x = 7/2, y = 3/2$
(d) $x = 2/7, y = 3/2$
- 20) Find real θ such that $(3 + 2i \times \sin \theta)/(1 - 2i \times \sin \theta)$ is imaginary
(a) $\theta = n\pi \pm \pi/2$ where n is an integer
(b) $\theta = n\pi \pm \pi/3$ where n is an integer
(c) $\theta = n\pi \pm \pi/4$ where n is an integer
(d) None of these
- 21) If $\{(1 + i)/(1 - i)\}^n = 1$ then the least value of n is
(a) 1
(b) 2
(c) 3
(d) 4
- 22) The modulus of $5 + 4i$ is
(a) 41
(b) -41
(c) $\sqrt{41}$
(d) $-\sqrt{41}$
- 23) If a, b, c are in G.P., then the equations $ax^2 + 2bx + c = 0$ and $dx^2 + 2ex + f = 0$ have a common root if $d/a, e/b, f/c$ are in
(a) AP
(b) GP
(c) HP
(d) none of these
- 24) Three numbers form an increasing GP. If the middle term is doubled, then the new numbers are in AP. The common ratio of GP is
(a) $2 + \sqrt{3}$
(b) $2 - \sqrt{3}$
(c) $2 \pm \sqrt{3}$
(d) None of these
- 25) If $1/(b + c), 1/(c + a), 1/(a + b)$ are in AP then
(a) a, b, c are in AP
(b) a^2, b^2, c^2 are in AP
(c) $1/a, 1/b, 1/c$ are in AP
(d) None of these
- 26) The sum of two numbers is $13/6$. An even number of arithmetic means are being inserted between them and their sum exceeds their number by 1. Then the number of means inserted is
(a) 2
(b) 4

(c) 6

(d) 8

27) If $2/3$, k , $5/8$ are in AP then the value of k is

(a) $31/24$

(b) $31/48$

(c) $24/31$

(d) $48/31$

28) If the third term of an A.P. is 7 and its 7th term is 2 more than three times of its third term, then the sum of its first 20 terms is

(a) 228

(b) 74

(c) 740

(d) 1090

29) If the sum of the first $2n$ terms of the A.P. 2, 5, 8,, is equal to the sum of the first n terms of the A.P. 57, 59, 61,, then n equals

(a) 10

(b) 12

(c) 11

(d) 13

30) If a is the A.M. of b and c and G_1 and G_2 are two GM between them then the sum of their cubes is

(a) abc

(b) $2abc$

(c) $3abc$

(d) $4abc$

31) The locus of a point, whose abscissa and ordinate are always equal is

(a) $x + y + 1 = 0$

(b) $x - y = 0$

(c) $x + y = 1$

(d) none of these.

32) The equation of straight line passing through the point (1, 2) and parallel to the line $y = 3x + 1$ is

(a) $y + 2 = x + 1$

(b) $y + 2 = 3 \times (x + 1)$

(c) $y - 2 = 3 \times (x - 1)$

(d) $y - 2 = x - 1$

33) What can be said regarding if a line if its slope is negative

(a) θ is an acute angle

(b) θ is an obtuse angle

(c) Either the line is x-axis or it is parallel to the x-axis.

(d) None of these

34) The equation of the line which cuts off equal and positive intercepts from the axes and passes through the point (α, β) is

(a) $x + y = \alpha + \beta$

(b) $x + y = \alpha$

(c) $x + y = \beta$

(d) None

35) The equation of the line passing through the point (2, 3) with slope 2 is

(a) $2x + y - 1 = 0$

(b) $2x - y + 1 = 0$

(c) $2x - y - 1 = 0$

(d) $2x + y + 1 = 0$

36) Two lines $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ are parallel if

(a) $a_1/a_2 = b_1/b_2 \neq c_1/c_2$

(b) $a_1/a_2 \neq b_1/b_2 = c_1/c_2$

(c) $a_1/a_2 \neq b_1/b_2 \neq c_1/c_2$

(d) $a_1/a_2 = b_1/b_2 = c_1/c_2$

37) In a ΔABC , if A is the point (1, 2) and equations of the median through B and C are respectively $x + y = 5$ and $x = 4$, then B is

(a) (1, 4)

(b) (7, -2)

(c) none of these

(d) (4, 1)

38) The length of the perpendicular from the origin to a line is 7 and the line makes an angle of 150 degrees with the positive direction of the y-axis. Then the equation of line is

(a) $x + y = 14$

(b) $\sqrt{3}y + x = 14$

(c) $\sqrt{3}x + y = 14$

(d) None of these

39) If two vertices of a triangle are (3, -2) and (-2, 3) and its orthocenter is (-6, 1) then its third vertex is

(a) (5, 3)

(b) (-5, 3)

(c) (5, -3)

(d) (-5, -3)

40) The equation of the line through the points (1, 5) and (2, 3) is

(a) $2x - y - 7 = 0$

(b) $2x + y + 7 = 0$

(c) $2x + y - 7 = 0$

(d) $x + 2y - 7 = 0$

41) Two lines are perpendicular if the product of their slopes is

(a) 0

(b) 1

(c) -1

(d) None of these

42) y-intercept of the line $4x - 3y + 15 = 0$ is

(a) $-15/4$

(b) $15/4$

(c) -5

(d) 5

43) The equation of the locus of a point equidistant from the point A(1, 3) and B(-2, 1) is

(a) $6x - 4y = 5$

(b) $6x + 4y = 5$

(c) $6x + 4y = 7$

(d) $6x - 4y = 7$