



ST. ALPHONSA'S HIGH SCHOOL – TECHNO SECTION
IX CLASS On Line Assignment Mathematics
Conceptual Objectives

I. Fill in the blanks:

1. If order of matrix A is 4×3 and AB is 4×5 then the order of B is _____.

2. Two matrices $A = \begin{bmatrix} 2 & 3 \\ 5 & -1 \end{bmatrix}$ and $B = \begin{bmatrix} x & 7 \\ -3 & -y \end{bmatrix}$ are equal then $x + y$ is

3. If $A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$ then $kA =$ _____.

4. If $A = \begin{pmatrix} a & p \\ b & q \\ c & r \end{pmatrix}$ then $(A^T)^T =$ _____.

5. If $A = \begin{pmatrix} 1 & 4 & 7 \\ 2 & 5 & 8 \\ 3 & 6 & 9 \end{pmatrix}$ then $A^T =$ _____.

6. The product of $\begin{pmatrix} 1 \\ 2 \end{pmatrix}$ and $(3 \ 4)$ is _____.

7. The sum / difference of a rational and an irrational number is _____.

8. $\sqrt{7 + \sqrt{48}} =$ _____.

9. Addition and subtraction of similar surds can be done using the _____ law.

10. $\log_5 2 + \log_5 20 - \log_5 8 =$ _____.

11. If $2\log x + 2\log y = k$ and $xy = 1$ then $k =$ _____.

12. If $5\log 3 + \log x = 5\log 6$ then $x =$ _____.

13. If $\log_{10} 2 = 0.3010$ then $\log_{10} 2000 =$ _____.

14. The value of $\log_{0.6} \left(\frac{9}{25} \right) =$ _____.

15. If $x + \sqrt{5} = 4 + \sqrt{y}$ then $x + y =$ _____.

16. The mean of the first n natural numbers is $\frac{5n}{9}$ then $n =$ _____.
17. If the difference of the mode and median of a data is 24 then the difference of median and mean is _____.
18. Range of 14, 12, 17, 18, 16 and x is 20 then $x =$ _____.
19. The mean of set of observation is a . If each observation is multiplied by b and each product is decreased by c , then the mean of new set of observation is _____.
20. The arithmetic mean of 12 observations is 15. If two observations 20 and 25 are removed then arithmetic mean of remaining observations is _____.
21. The arithmetic mean and mode of a data is 24 and 12 respectively, then the median of the data is _____.
22. If the mean of 2,4,6,8, x and y is 5 then $x + y =$ _____.
23. The upper class limit of inclusive type class interval 10-20 is _____.
24. The mode of the observations $2x + 3$, $3x-2$, $4x+3$, $x - 1$, $3x - 1$, $5x + 2$ can be _____
25. If the ratio of mean and median of a certain data is 2:3 then the ratio of its mode and median is _____.

II. Competitive examination questions: (BITSAT foundation & CEEP foundation).

26. How many 7's are there in the following number series, which are preceded by an even number but not followed by an odd? ().
- 4 3 7 5 2 3 7 2 1 3 6 7 5 4 2 7 4 2 7 1 2 2 7 6 5 7 2
- A. 1 B. 2 C. 3 D. 4
27. $23 : 57 :: 1113$ ().
- A. 1676 B. 1824 C. 1719 D. 1852
28. 97, 83, 73, 67, 59 _____ ().
- A. 53 B. 49 C. 47 D. 51
29. Identity the wrong number. ().
- 3,5,10, 12, 24, 26, 48, 54
- A. 12 B. 24 C. 26 D. 48
30. Find the missing number. ().

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|----|-----|----|
| 5 | 28 | 3 |
| 11 | 125 | 4 |
| 9 | ? | 11 |

- A. 85 B. 92 C. 99 D. 70
31. How many times do the hands of a clock coincide in a day? ().
- A. 20 B. 21 C. 22 D. 24
32. If yesterday was Sunday, after how many days the next Sunday will come? ().
- A. 7 B. 6 C. 5 D. 8
33. If $a^x = b^y = c^z$ and $abc = 1$ then $xy + yz + zx =$ _____ . ().
- A. 0 B. 1 C. xyz D. $3xyz$
34. $\frac{1}{1+x^{-2}} + \frac{1}{1+x^2} =$ _____ . ().
- A. 0 B. 1 C. x^2 D. $1+x^2$
35. If $64^x = 2\sqrt{2}$ then $x =$ _____ . ().
- A. $\frac{1}{4}$ B. $\frac{1}{6}$ C. $\frac{1}{\sqrt{2}}$ D. $\frac{3}{2}$
36. $25^2 \times 5^3 \times \frac{1}{5^4} =$ _____ . ().
- A. 5^2 B. 5^3 C. 5 D. $\frac{25^2}{5}$
37. If $2^x = 64$ then $2^{\frac{x}{2}}$ then $x =$ _____ . ().
- A. 32 B. 8 C. 4 D. 16
38. If $x = 5$ and $y = 3$ then the value of $(x+y)^{\frac{x}{y}} =$ _____ . ().
- A. 32 B. 8 C. $8^{3/5}$ D. 1
39. If $\sqrt{144} = 12$ then $\sqrt{0.0144} =$ _____ . ().
- A. 1.2 B. 0.12 C. 0.012 D. 0.102
40. $\sqrt{6+\sqrt{6+\sqrt{6}}} + \dots \dots \dots \infty =$ _____ . ().
- A. 2 B. 3 C. 4 D. 6
41. If $A = \begin{pmatrix} 1 & -2 \\ 3 & 4 \end{pmatrix}$ then the value of $|A| =$ _____ . ().
- A. 3 B. 2 C. 1 D. 10
42. $A = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$ then $A A^{-1} =$ _____ . ().
- A. A B. $-A$ C. I D. -1

43. If $\begin{pmatrix} 1 & 3 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} 2 \\ -1 \end{pmatrix} = \begin{pmatrix} p \\ -1 \end{pmatrix}$ then $p =$ _____ . ().

- A. 2 B. 1 C. -1 D. 0

44. If $\begin{pmatrix} 0 & -1 \\ 1 & 0 \end{pmatrix} \begin{pmatrix} a \\ b \end{pmatrix} = \begin{pmatrix} 4 \\ 5 \end{pmatrix}$ then $a + b =$ _____ . ().

- A. -4 B. 5 C. 9 D. 1

45. The number of elements in $A_{2 \times 3}$ matrix is _____ . ().

- A. 4 B. 6 C. 5 D. 3

46. If a matrix is equal to its transpose then it is called _____ . ().

- A. Identical B. Symmetric C. Scalar D. Rectangular

47. If $\det(A) = 16$ where $A = \begin{pmatrix} x & 0 \\ 0 & x \end{pmatrix}$ then $x =$ _____ . ().

- A. ± 16 B. ± 4 C. ± 2 D. None

48. Median of the scores 6, 49, 14, 46, 16, 42, 26, 32, 28 is _____. ().

- A. 30 B. 32 C. 31 D. 29

49. The mean of 9, 11, 13, p , 18, 19 is p then $p =$ _____ . ().

- A. 13 B. 19 C. 14 D. 11

50. Arithmetic mean of 6, 8, 6, 10, 26, 24, 32 is _____ . ().

- A. 15 B. 16 C. 6 D. 10