

Que. 1) Solve any one.

[marks – 10]

1) a) Solve The system of equations by cramer's rule.

$$\frac{2}{x} + \frac{3}{y} + \frac{10}{z} = 4, \quad \frac{4}{x} - \frac{6}{y} + \frac{5}{z} = 1, \quad \frac{6}{x} + \frac{9}{y} - \frac{20}{z} = 2$$

b) Resolve $\frac{2x+3}{x^2-2x-3}$ into partial fraction.

2) a) If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 4 \\ 2 & 5 \end{bmatrix}$ verify that $(AB)^T = B^T A^T$

b) Find the inverse of the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 1 \\ 3 & 1 & 2 \end{bmatrix}$

Que. 2) Solve any Five.

[marks – 25]

1) If $f(x)$ if function of x and k is constant, then $\frac{d}{dx} (kf(x)) = k \frac{d}{dx} f(x)$

2) If $f(x)$ and $g(x)$ are two functions of x , then $\frac{d}{dx} [f(x) + g(x)] = \frac{d}{dx} f(x) + \frac{d}{dx} g(x)$

3) $\lim_{x \rightarrow 3} \frac{x^2 - 9}{x - 3}$

4) Write the cofactors of each elements of the determinant $A = \begin{vmatrix} 0 & 1 & -1 \\ 2 & -1 & 3 \\ 3 & 4 & 5 \end{vmatrix}$

5) If $A = \begin{bmatrix} 2 & 0 & -1 \\ 1 & 2 & 1 \end{bmatrix}$, $B = \begin{bmatrix} 0 & 1 & 2 \\ 3 & 1 & 0 \end{bmatrix}$, then find $A + B$, $A - B$.

6) If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$, then find the adjoint of the matrix

7) Find the area of the triangle with vertices are (3,8), (-4,2) & (5,-1)