

Assignment 1

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1

(a)

Any element of $A = (a_{ij})$ where $1 \leq i \leq m, 1 \leq j \leq n$.
And $\vec{x} = (x_i)$ where $1 \leq i \leq n$

(b)

2

m x nk

3

3(a)

$$\begin{bmatrix} 2\sin(2x)\cos(y) & -2\sin^2(x)\sin(y) \\ 2x & 3e^y \end{bmatrix}$$

3(b)

$$\begin{bmatrix} 6xy + yzw & 3x^2 + xzw & xyw & xyz \\ 2x\cos(x^2 + yw - z) & w\cos(x^2 + yw - z) & -\cos(x^2 + yw - z) & y\cos(x^2 + yw - z) \end{bmatrix}$$

4

$$\beta = (\beta_{ij}) \quad 1 \leq i \leq n$$

And $\vec{x} = (x_i)$ where $1 \leq i \leq n$

$$\beta^T \vec{x} = \sum_{i=1}^n \beta_i x_i$$

$$de^{\beta^T \vec{x}}$$

$$\overline{d\vec{x}}$$