

# Linjär Algebra

## Matrisoperationer transponat

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1. Find  $(A + B)^T$ .

$$A = \begin{bmatrix} 2 & -1 & 3 \\ 4 & -1 & 2 \end{bmatrix}, B = \begin{bmatrix} 1 & 2 & 0 \\ 1 & -2 & 3 \\ 0 & 4 & -2 \end{bmatrix}$$

2. Compute  $(2C)^T$ .

$$C = \begin{bmatrix} 3 & -2 & 1 \\ 0 & 4 & -3 \\ 1 & -3 & -3 \end{bmatrix}$$

3. Determine  $(DE)^T$ .

$$D = \begin{bmatrix} 2 & 1 & 0 \\ 1 & -1 & 3 \\ 2 & 0 & -2 \end{bmatrix}, E = \begin{bmatrix} 1 & 0 & 2 \\ 2 & 3 & -1 \\ 2 & -2 & 1 \end{bmatrix}$$

4. Calculate  $(Fv)^T$ .

$$F = \begin{bmatrix} 3 & 1 & 2 \\ 0 & -2 & 1 \\ 1 & -4 & -1 \end{bmatrix}, v = \begin{bmatrix} 2 \\ -1 \\ 3 \end{bmatrix}$$

5. Compute  $((G + H)I)^T$ .

$$G = \begin{bmatrix} 2 & -1 & 1 \\ 3 & 4 & -1 \\ -1 & 0 & 3 \end{bmatrix}, H = \begin{bmatrix} -2 & 1 & 0 \\ -1 & -2 & 1 \\ 0 & -2 & 1 \end{bmatrix}, I = \begin{bmatrix} 1 & -3 & 2 \\ 2 & 0 & 0 \\ 0 & 1 & 4 \end{bmatrix}$$

6. Calculate  $MN$ .

$$M = \begin{bmatrix} 2 & -1 \\ 3 & 4 \\ -2 & 3 \end{bmatrix}, \quad N = \begin{bmatrix} -2 & 3 & 0 & 1 \\ 1 & 0 & -2 & 3 \end{bmatrix}$$

7. Compute  $PQ$ .

$$P = \begin{bmatrix} 1 & -3 \\ 2 & -2 \\ -1 & 4 \\ 3 & 1 \end{bmatrix}, \quad Q = \begin{bmatrix} 0 & -2 & 1 & 5 \\ -3 & 2 & 4 & -1 \end{bmatrix}$$

8. Determine  $RS$ .

$$R = \begin{bmatrix} 2 & -1 & 4 & 0 \\ 3 & 4 & 1 & 2 \\ -2 & 3 & 0 & -1 \end{bmatrix}, \quad S = \begin{bmatrix} -2 & 3 \\ 1 & 0 \\ 3 & -1 \\ 0 & 2 \end{bmatrix}$$