

HWST 60.1: Presentation and Construction

Problems

1) $A_1 = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$ $A_2 = \begin{pmatrix} 2 & 1 \\ 4 & 3 \end{pmatrix}$

2) $A_1 = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix}$ $A_2 = \begin{pmatrix} 2 & 1 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix}$

3) Show graphically that $A_1 A_2 \neq A_2 A_1$ and $A_1 A_2 \neq A_2 A_1$ when A_1 and A_2 are 2×2 matrices.

$$A_1 A_2 = \begin{pmatrix} 10 & 14 \\ 26 & 34 \end{pmatrix}$$

4) The matrix A is a 2×2 matrix. Find A if $A^2 = \begin{pmatrix} 5 & 4 \\ 4 & 5 \end{pmatrix}$.

$$A = \begin{pmatrix} 1 & 2 \\ 2 & 1 \end{pmatrix}$$

5) The matrix A is a 3×3 matrix. Find A if $A^2 = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$.

$$A = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$$

6) The matrix A is a 3×3 matrix. Find A if $A^2 = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$.

$$A = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$$

HWST 60.2: Presentation and Construction

1) $A_1 = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$ $A_2 = \begin{pmatrix} 2 & 1 \\ 4 & 3 \end{pmatrix}$

2) $A_1 = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix}$ $A_2 = \begin{pmatrix} 2 & 1 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix}$

3) Show graphically that $A_1 A_2 \neq A_2 A_1$ and $A_1 A_2 \neq A_2 A_1$ when A_1 and A_2 are 2×2 matrices.

$$A_1 A_2 = \begin{pmatrix} 10 & 14 \\ 26 & 34 \end{pmatrix}$$

4) The matrix A is a 2×2 matrix. Find A if $A^2 = \begin{pmatrix} 5 & 4 \\ 4 & 5 \end{pmatrix}$.

$$A = \begin{pmatrix} 1 & 2 \\ 2 & 1 \end{pmatrix}$$

5) The matrix A is a 3×3 matrix. Find A if $A^2 = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$.

$$A = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$$

6) The matrix A is a 3×3 matrix. Find A if $A^2 = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$.

$$A = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$$