

Math Camp

Day 5 Exercises

Exercise 1

Given:

$$A = \begin{pmatrix} 7 & 2 & 6 \\ 5 & 4 & 8 \\ 3 & 1 & 9 \end{pmatrix}; \quad B = \begin{pmatrix} 6 & 2 \\ 5 & 0 \end{pmatrix}; \quad C = \begin{pmatrix} 11 \\ 4 \\ 13 \end{pmatrix}; \quad D = \begin{pmatrix} 14 \\ 2 \end{pmatrix}; \quad E = (8 \quad 1 \quad 10); \quad F = (13 \quad 3)$$

For each of the following cases, determine whether the products are defined, i.e., conformable for multiplication. If so, compute the product matrix and indicate its dimensions.

- a) AC b) BD c) EC d) DF e) CA f) DE
g) DB h) CF i) EF

Exercise 2:

Find the inverse of the following matrices.

$$A = \begin{pmatrix} 24 & 15 \\ 8 & 7 \end{pmatrix}; \quad B = \begin{pmatrix} 7 & 9 \\ 6 & 12 \end{pmatrix}$$

Exercise 3:

Calculate the determinant of the following matrices.

$$C = \begin{pmatrix} 0 & -1 & -1 \\ -1 & 8 & 3 \\ -1 & 3 & 12 \end{pmatrix} \quad D = \begin{pmatrix} 0 & -4 & -2 \\ -4 & 0 & 1 \\ -2 & 1 & 0 \end{pmatrix}$$