

Matrices M123 – More Practice with Matrix Operations

For the following matrices:

1) state the dimensions of the matrix & 2) state the value of the given element.

$$1. \begin{bmatrix} 1 & 3 & 5 \\ 7 & 2 & 3 \\ 5 & -2 & 8 \\ -1 & 6 & 9 \end{bmatrix}; a_{23}$$

$$2. \begin{bmatrix} 3 & -4 & 8 & -5 & 7 \\ 0 & 2 & 2 & -3 & 2 \\ 1 & -1 & 0 & 1 & 5 \\ 9 & -2 & 5 & -2 & 1 \end{bmatrix}; a_{42}$$

Perform the following matrix operations. If not possible, state “not possible”.

$$3. \begin{bmatrix} 3 & -2 \\ 0 & 2 \end{bmatrix} \times \begin{bmatrix} 9 & 1 \\ 5 & -2 \end{bmatrix}$$

$$4. [3 \ 1 \ -4 \ 2] \times \begin{bmatrix} 2 \\ 7 \\ -2 \\ -1 \end{bmatrix}$$

$$5. \begin{bmatrix} 2 \\ 1 \end{bmatrix} \times \begin{bmatrix} -2 \\ 3 \end{bmatrix}$$

$$6. 3 \cdot \begin{bmatrix} 3 & -2 \\ -2 & 0 \\ 1 & 7 \end{bmatrix}$$

$$7. \begin{bmatrix} 5 & 5 \\ -2 & 1 \end{bmatrix} - \begin{bmatrix} 3 & 11 & 1 \\ -3 & 2 & 0 \\ -2 & 5 & 6 \end{bmatrix}$$

$$8. \begin{bmatrix} 0 & -2 & 3 \\ -6 & -1 & 5 \\ 9 & 12 & 8 \end{bmatrix} + \begin{bmatrix} -2 & 0 & -9 \\ 2 & -4 & 2 \\ 3 & -4 & 6 \end{bmatrix}$$

$$9. \frac{1}{2} \cdot \begin{bmatrix} 6 & 22 \\ 30 & 4 \end{bmatrix}$$

$$10. \begin{bmatrix} 2 & -4 \\ 1 & 5 \end{bmatrix} \times \begin{bmatrix} 2 & 3 \\ -5 & 4 \end{bmatrix}$$

$$11. \begin{bmatrix} 2 \\ 5 \\ -2 \end{bmatrix} \times \begin{bmatrix} 1 \\ 0 \\ 3 \end{bmatrix}$$