

Matrices lesson 2 - Adding and subtracting matrices

Magic Monk Tutorials

1 Evaluate the following given the following matrices:

$$A = \begin{pmatrix} 1 & 3 & 1 \\ 5 & 4 & 0 \\ 3 & 2 & 4 \end{pmatrix}, B = \begin{pmatrix} 4 & 2 & 3 \\ 5 & 3 & 1 \\ 6 & 1 & 2 \end{pmatrix}$$

1.1 A+B

$$A + B = \begin{pmatrix} 1 & 3 & 1 \\ 5 & 4 & 0 \\ 3 & 2 & 4 \end{pmatrix} + \begin{pmatrix} 4 & 2 & 3 \\ 5 & 3 & 1 \\ 6 & 1 & 2 \end{pmatrix} = \begin{pmatrix} 5 & 5 & 4 \\ 10 & 7 & 1 \\ 9 & 3 & 6 \end{pmatrix}$$

1.2 A-B

$$A - B = \begin{pmatrix} 1 & 3 & 1 \\ 5 & 4 & 0 \\ 3 & 2 & 4 \end{pmatrix} - \begin{pmatrix} 4 & 2 & 3 \\ 5 & 3 & 1 \\ 6 & 1 & 2 \end{pmatrix} = \begin{pmatrix} -3 & 1 & -2 \\ 0 & 1 & -1 \\ -3 & 1 & 2 \end{pmatrix}$$

1.3 A+A

$$A + A = \begin{pmatrix} 1 & 3 & 1 \\ 5 & 4 & 0 \\ 3 & 2 & 4 \end{pmatrix} + \begin{pmatrix} 1 & 3 & 1 \\ 5 & 4 & 0 \\ 3 & 2 & 4 \end{pmatrix} = \begin{pmatrix} 2 & 6 & 2 \\ 10 & 8 & 0 \\ 6 & 4 & 8 \end{pmatrix}$$

1.4 A+A-B

$$A + A - B = \begin{pmatrix} 1 & 3 & 1 \\ 5 & 4 & 0 \\ 3 & 2 & 4 \end{pmatrix} + \begin{pmatrix} 1 & 3 & 1 \\ 5 & 4 & 0 \\ 3 & 2 & 4 \end{pmatrix} - \begin{pmatrix} 4 & 2 & 3 \\ 5 & 3 & 1 \\ 6 & 1 & 2 \end{pmatrix} = \begin{pmatrix} 2 & 6 & 2 \\ 10 & 8 & 0 \\ 6 & 4 & 8 \end{pmatrix} - \begin{pmatrix} 4 & 2 & 3 \\ 5 & 3 & 1 \\ 6 & 1 & 2 \end{pmatrix} = \begin{pmatrix} -2 & 4 & -1 \\ 5 & 5 & -1 \\ 0 & 3 & 6 \end{pmatrix}$$

2 Evaluate the following given the following matrices:

$$C = \begin{pmatrix} 2 & 3 \\ 4 & 5 \\ 6 & 7 \end{pmatrix}, D = \begin{pmatrix} 1 & 4 \\ 2 & 6 \\ 5 & 3 \end{pmatrix}$$

2.1 C+D

$$C + D = \begin{pmatrix} 2 & 3 \\ 4 & 5 \\ 6 & 7 \end{pmatrix} + \begin{pmatrix} 1 & 4 \\ 2 & 6 \\ 5 & 3 \end{pmatrix} = \begin{pmatrix} 3 & 7 \\ 6 & 11 \\ 11 & 10 \end{pmatrix}$$

2.2 D+D

$$D + D = \begin{pmatrix} 1 & 4 \\ 2 & 6 \\ 5 & 3 \end{pmatrix} + \begin{pmatrix} 1 & 4 \\ 2 & 6 \\ 5 & 3 \end{pmatrix} = \begin{pmatrix} 2 & 8 \\ 4 & 12 \\ 10 & 6 \end{pmatrix}$$