



Algebra of Matrix:

Multiplication of Matrix by a scalar

- Let k be a scalar (real or complex) and $A = [a_{ij}]_{m \times n}$ thus $kA = [b_{ij}]_{m \times n}$, where $b_{ij} = k a_{ij} \forall i \& j$

Example: If $A = \begin{pmatrix} -1 & 2 & -6 \\ 3 & -4 & 7 \end{pmatrix}$, then $-A$ is:

Solution:

$$\begin{aligned} -A &= (-1)A = -1 \times \begin{pmatrix} -1 & 2 & -6 \\ 3 & -4 & 7 \end{pmatrix} \\ &= \begin{pmatrix} 1 & -2 & 6 \\ -3 & 4 & -7 \end{pmatrix} \end{aligned}$$

$-A$ is the negative of matrix A