matrix arithmetic: scalar multiplication

Let A be an $m \times n$ matrix and let k be a scalar. The scalar multiplication of k and A, denoted kA, is

$$\begin{bmatrix} ka_{11} & ka_{12} & \cdots & ka_{1n} \\ ka_{21} & ka_{22} & \cdots & ka_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ ka_{m1} & ka_{m2} & \cdots & ka_{mn} \end{bmatrix}$$

exercise 2

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

Simplify the following expression: $5(A + B)$

matrix arithmetic: matrix multiplication

Let A be an $m \times r$ matrix, and let B be an $r \times n$ matrix.

The matrix product of A and B, denoted $A \cdot B$ or AB, is the $m \times n$ matrix M whose entry in the ith row and jth column is the product of the ith row of A and the jth column of B.