

# Assignment 2

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Download all python codes from

<https://github.com/tanmaygoyal258/EE3900-Linear-Systems-and-Signal-processing/blob/main/Assignment2/code.py>

Download all latex codes from

<https://github.com/tanmaygoyal258/EE3900-Linear-Systems-and-Signal-processing/blob/main/Assignment2/main.tex>

## 1 PROBLEM

(Matrix Q.2.48) Find  $AB$ , if  $A = \begin{pmatrix} 0 & -1 \\ 0 & 2 \end{pmatrix}$  and  $B = \begin{pmatrix} 3 & 5 \\ 0 & 0 \end{pmatrix}$

## 2 SOLUTION

We know matrix multiplication is a row-by-column multiplication. Thus,

$$AB = \begin{pmatrix} 0 & -1 \\ 0 & 2 \end{pmatrix} \begin{pmatrix} 3 & 5 \\ 0 & 0 \end{pmatrix} \quad (2.0.1)$$

$$= \begin{pmatrix} (0 \times 3) + (-1 \times 0) & (0 \times 5) + (-1 \times 0) \\ (0 \times 3) + (2 \times 0) & (0 \times 5) + (2 \times 0) \end{pmatrix} \quad (2.0.2)$$

$$AB = \begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix} \quad (2.0.3)$$