## Step-1

We have to find two inner products and a matrix product.

$$\begin{pmatrix} 1 & -2 & 7 \end{pmatrix} \begin{pmatrix} 1 \\ -2 \\ 7 \end{pmatrix} = \begin{bmatrix} 1(1) - 2(-2) + 7(7) \end{bmatrix}$$

- =(1+4+49)
- =  $\boxed{54}$  which is the first inner product.

## Step-2

$$\begin{bmatrix} 1 & -2 & 7 \end{bmatrix} \begin{bmatrix} 3 \\ 5 \\ 1 \end{bmatrix} = \begin{bmatrix} 3(1) + 5(-2) + 1(7) \end{bmatrix}$$

- =[3-10+7]
- =  $\boxed{0}$  which is the second inner product.

## Step-3

$$\begin{bmatrix} 1 \\ -2 \\ 7 \end{bmatrix} \begin{bmatrix} 3 & 5 & 1 \end{bmatrix} = \begin{bmatrix} 1(3) & 1(5) & 1(1) \\ -2(3) & -2(5) & -2(1) \\ 7(3) & 7(5) & 7(1) \end{bmatrix}$$

$$= \begin{bmatrix} 3 & 5 & 1 \\ -6 & -10 & -2 \\ 21 & 35 & 7 \end{bmatrix}$$