Step-1

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

$$\begin{pmatrix}1 & -2 & 7\end{pmatrix}\begin{pmatrix}1\\-2\\7\end{pmatrix}=\left[1(1)-2(-2)+7(7)\right]$$

$$=\left(1+4+49\right)$$

$$=\boxed{54}$$ which is the first inner product.

Step-2

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

$$=\left[3-10+7\right]$$

$$=\boxed{0}$$ which is the second inner product.

Step-3

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

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