

Subject: Session 9 Problems

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1 (i)
$$\begin{pmatrix} 1 & 3 \\ 4 & 5 \end{pmatrix} \begin{pmatrix} 1 & 3 \\ 4 & 5 \end{pmatrix} = \begin{pmatrix} 13 & 18 \\ 24 & 37 \end{pmatrix}$$

(ii)
$$\begin{pmatrix} 1 & 3 \\ 4 & 5 \end{pmatrix} \begin{pmatrix} 1 & 1 & 1 \\ 4 & 5 & 6 \end{pmatrix} = \begin{pmatrix} 13 & 16 & 19 \\ 24 & 29 & 34 \end{pmatrix}$$

(iii)
$$\begin{pmatrix} 1 & 3 \\ 4 & 5 \end{pmatrix} \begin{pmatrix} 5 \\ 3 \end{pmatrix} = \begin{pmatrix} 14 \\ 35 \end{pmatrix}$$

(iv)
$$\begin{pmatrix} 3 & 0 \\ 0 & 3 \end{pmatrix} \begin{pmatrix} 1 & 3 \\ 4 & 5 \end{pmatrix} = \begin{pmatrix} 3 & 9 \\ 12 & 15 \end{pmatrix}$$

(v)
$$\begin{pmatrix} 1 & 4 \\ 1 & 5 \\ 1 & 6 \end{pmatrix} \begin{pmatrix} 5 \\ 3 \end{pmatrix} = \begin{pmatrix} 17 \\ 20 \\ 23 \end{pmatrix}$$

(vi)
$$\begin{pmatrix} 1 & 4 \\ 1 & 5 \\ 1 & 6 \end{pmatrix} \begin{pmatrix} 5 \\ 3 \end{pmatrix} = \begin{pmatrix} 17 \\ 20 \\ 23 \end{pmatrix}$$

(vii)
$$A + D = \begin{pmatrix} 4 & 3 \\ 4 & 8 \end{pmatrix}$$

2
$$B = \begin{pmatrix} 0 \\ 1 \\ 0 \end{pmatrix}$$

$$= \begin{pmatrix} 2 \\ 1 \\ 3 \end{pmatrix}$$

3
$$\begin{pmatrix} 2 & 3 & 5 \\ 0 & 2 & 1 \\ 1 & -2 & 0 \end{pmatrix} \begin{pmatrix} x \\ y \\ z \end{pmatrix}$$