

Step-1

Given that $A = \begin{pmatrix} a & b \\ c & d \end{pmatrix}$

And also given that

$$\begin{aligned} A \begin{pmatrix} 1 & 1 \\ 1 & 1 \end{pmatrix} &= \begin{pmatrix} 1 & 1 \\ 1 & 1 \end{pmatrix} A \\ \Rightarrow \begin{pmatrix} a & b \\ c & d \end{pmatrix} \begin{pmatrix} 1 & 1 \\ 1 & 1 \end{pmatrix} &= \begin{pmatrix} 1 & 1 \\ 1 & 1 \end{pmatrix} \begin{pmatrix} a & b \\ c & d \end{pmatrix} \\ \Rightarrow \begin{pmatrix} a+b & a+b \\ c+d & c+d \end{pmatrix} &= \begin{pmatrix} a+c & b+d \\ a+c & b+d \end{pmatrix} \end{aligned}$$

Step-2

From above, we have

$$a+b=a+c$$

$$\Rightarrow \boxed{b=c}$$

$$a+b=b+d$$

$$\Rightarrow \boxed{a=d}$$

$$c+d=a+c$$

$$\Rightarrow \boxed{a=d}$$

$$c+d=b+d$$

$$\Rightarrow \boxed{b=c}$$

Hence the given condition is satisfied if $\boxed{a=d, b=c}$