

$$(1,2,3) \begin{pmatrix} 1 & 1 & 2 \\ 2 & 1 & 1 \\ 1 & 0 & 2 \end{pmatrix} \begin{pmatrix} 1 \\ 2 \\ 1 \end{pmatrix} = (1+4+3, 1+2+0, 2+2+6) \begin{pmatrix} 1 \\ 2 \\ 1 \end{pmatrix} = (8,3,10) \begin{pmatrix} 1 \\ 2 \\ 1 \end{pmatrix} = 8+6+10 = 24$$