Step-1

We have to produce M by starting from a 3 by 3 matrix A with pivots 2, 7, 6, and by adding a fourth row and column to A, and we have to find the first three pivots for M, and we have to find the fourth row and the fourth column to produce 9 as a fourth pivot.

Step-2

Given

$$A=\begin{bmatrix}2 & & \\ & 7 & \\ & & 6\end{bmatrix}$$

If the 3 by 3 matrix starts with pivots 2, 7, 6 and by adding the column and row with 0,0,0,1 then there is no effect on elimination since the fourth pivot there is 1.

Step-3

That is

$$M=\begin{bmatrix}2 & & & 0\\ & 7 & & 0\\ & & 6 & 0\\ 0 & 0 & 0 & 1\end{bmatrix}$$

By multiplying with 9 the fourth pivot becomes 9.