Step-1

The objective is to determine how the rows of EA are related the rows of A of the following cases:

Consider that $E = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 2 & 0 \\ 4 & 0 & 1 \end{bmatrix}$.

Step-2

For any non-zero matrix A, in the matrix EA is the exchange of,

1. The second row is 2 times the second row of A.

That is, $R_2 \to 2R_2$.

2. The third row is 4 times of row 1 + row 3 of A

That is, $R_3 \to R_3 + 4R_1$.

Hence, E is the elementary matrix obtained by applying the following operations:

$$\boxed{\begin{array}{l} R_2 \to 2R_2 \\ R_3 \to R_3 + 4R_1 \end{array}}$$

Step-3

Consider that $E = \begin{bmatrix} 1 & 1 & 1 \\ 0 & 0 & 0 \end{bmatrix}$

Since the second row is zero, therefore E is not an elementary matrix.

Step-4

Consider that $E = \begin{bmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{bmatrix}$.

For any none zero matrixes A, in the matrix EA is the exchange of row 1 and row 3.

That is, $R_1 \leftrightarrow R_3$.

Hence, E is the elementary matrix obtained by applying the operation, $\boxed{R_1 \leftrightarrow R_3}$.