## Step-1

(a) Consider $I = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$

$E_{21}$ subtract 5 times row 1 from row 2

Therefore $E_{21} = \begin{pmatrix} 1 & 0 & 0 \\ -5 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$

## Step-2

(b) $E_{32}$ subtract -7 times row 2 from row 3

Therefore $E_{32} = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 7 & 1 \end{pmatrix}$

## Step-3

(c) $P$ exchange rows 1 and 2, then rows 2 and 3

Therefore $A = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$

$R_1 \Leftrightarrow R_2$

$\square \begin{pmatrix} 0 & 1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & 1 \end{pmatrix}$

$R_2 \Leftrightarrow R_3$

$\square \begin{pmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ 1 & 0 & 0 \end{pmatrix}$