to find the matrix we do a couple mechanical steps:

row to change

① R_2 R_1 row of the pivot

②

$$\begin{bmatrix} -4 \\ 1 \end{bmatrix}$$

pivot column

absolute value of the pivot column

③

$|-4| = 4 \longrightarrow R_1$

$|1| = 1 \longrightarrow R_2$

④ $4R_2$ $-1R_1$ we multiply each row

"+" if the entries have the opposite sign

"−" same sign

⑤ replace the "row to change" with the sum / difference of the two rows