(2). $\rightarrow A^{-1}A = \boxed{A \cdot A^{-1} = I}$ : we know.

so, if we make augmented matrix such that $\rightarrow$

$$[A \mid I]$$

$\downarrow$ if we perform Elem$^{r.}$ row op.$^{n.}$ such that left side matrix's 2$^{nd}$ row becomes I's 2$^{nd}$ row. Then right side we'll get the answer.

So $\rightarrow$ Augmented Matrix $\rightarrow$

$$\left[\begin{array}{ccc|ccc} 1 & -2 & 2 & 1 & 0 & 0 \\ 2 & -3 & 5 & 0 & 1 & 0 \\ 1 & -1 & 4 & 0 & 0 & 1 \end{array}\right]$$

$\downarrow$ $R_2 \rightarrow R_2 - 2R_1$
$R_3 \rightarrow R_3 - R_1$

$$\left[\begin{array}{ccc|ccc} 1 & -2 & 2 & 1 & 0 & 0 \\ 0 & 1 & 1 & -2 & 1 & 0 \\ 0 & 1 & 2 & -1 & 0 & 1 \end{array}\right]$$

$\downarrow$ $R_3 \rightarrow R_3 - R_2$

$$\left[\begin{array}{ccc|ccc} 1 & -2 & 2 & 1 & 0 & 0 \\ 0 & 1 & 1 & -2 & 1 & 0 \\ 0 & 0 & 1 & 1 & -1 & 1 \end{array}\right]$$

$\downarrow$ $R_2 \rightarrow R_2 - R_3$

$$\left[\begin{array}{ccc|ccc} 1 & -2 & 2 & 1 & 0 & 0 \\ 0 & 1 & 0 & -3 & 2 & -1 \\ 0 & 0 & 1 & 1 & -1 & 1 \end{array}\right];$$

So, 2$^{nd}$ Row of inverse is $\Rightarrow$ $(-3 \quad 2 \quad -1)$