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

先搞定第1列， 做初等行变换

$newLine2 = (line1) \times 1 + line2$

$newLine4 = (line1) \times (-1) + line4$

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

再搞定第2列， 做初等行变换

$newLine1 = (line2) \times (-2) + line1$

$newLine3 = (line2) \times (-1) + line3$

$newLine4 = (line2) \times (-1) + line4$

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

再搞定第3列的第1行， 做初等列变换

$newCol3 = (Col1) \times (1) + Col3$

$$= \left[\begin{array}{c|c|c} 1 & 0 & 0 \\ 0 & 1 & 1 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{array}\right]$$

再搞定第3列的第二行， 做初等列变换

$newCol3 = (Col2) \times (-1) + Col3$

$$= \left[\begin{array}{ccc} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{array}\right]$$

←就得到了“标准形”