$$\begin{bmatrix} -69 & \frac{-191}{2} & -4 \\ 9 & -12 & -51 \\ -12 & 16 & 11/2 \end{bmatrix}$$

$\updownarrow R_1/-69,\ R_2 \to R_2 - 9R_1;\ R_3 \to R_3 + \frac{12}{69}R_1$

$$\begin{bmatrix} 1 & \frac{191}{138} & \frac{4}{69} \\ 0 & \frac{1707}{2} & \frac{-1224}{23} \\ 0 & \frac{750}{138} & \frac{85}{2} \end{bmatrix}$$

$\updownarrow \frac{R_2}{1707/2},\ R_3 - R_2 \times \frac{138}{750}$

$$\begin{bmatrix} 1 & \frac{191}{138} & \frac{4}{69} \\ 0 & 1 & \frac{816}{13087} \\ 0 & 0 & \frac{13073}{250} \end{bmatrix}$$

$\updownarrow \frac{R_3}{\frac{13073}{250}}$

$$\begin{bmatrix} 1 & \frac{191}{138} & \frac{4}{69} \\ 0 & 1 & \frac{816}{13087} \\ 0 & 0 & 1 \end{bmatrix}$$

$$-12 + \frac{9 \times 191}{2} = \frac{1707}{2}$$

$$-51 - \frac{36}{69} = \frac{-1224}{23}$$

$$16 + \frac{12}{23} \times \frac{191}{138}$$

$$\frac{750}{138}$$

$$\frac{11}{2} + (-48)$$

$$= \frac{11 - 96}{2} = \frac{85}{2}$$

$$\frac{-1224}{23} \times \frac{2}{1707}$$

$$= \frac{85}{2} + \frac{138}{750} \times \frac{1224}{23}$$

$$= \frac{85}{2} + \frac{1224}{125}$$