

E.g. Find the values for h so that the system

$$\begin{cases} 3x_1 + \quad \quad 6x_3 = 3 \\ \quad \quad x_2 + \underline{h} \cdot x_3 = 0 \\ 2x_1 - 3x_2 + 5x_3 = 3 \end{cases}$$

is consistent.

$$\left[\begin{array}{ccc|c} 3 & 0 & 6 & 3 \\ 0 & 1 & h & 0 \\ 2 & -3 & 5 & 3 \end{array} \right]$$

$$\sim \left[\begin{array}{ccc|c} \textcircled{1} & 0 & 2 & 1 \\ 0 & 1 & h & 0 \\ 2 & -3 & 5 & 1 \end{array} \right] \xrightarrow{\frac{1}{3} \cdot r_1} \sim \left[\begin{array}{ccc|c} \textcircled{1} & 0 & 2 & 1 \\ 0 & 1 & h & 0 \\ 0 & -3 & 1 & 1 \end{array} \right] \xrightarrow{r_3 - 2 \cdot r_1}$$

