Quiz 1 (due 18 Jan) MTH 329 Sp 2024

$$\begin{cases} 2x + 17y = 23 \\ x - y = 5 \\ 3x - 34y = 3 \end{cases}$$

$\Downarrow$

$$\left[\begin{array}{cc|c} 2 & 17 & 23 \\ 1 & -1 & 5 \\ 3 & -34 & 3 \end{array}\right] \begin{matrix} r_1^* = \frac{1}{2} r_1 \\ \sim \\ r_3^* = \frac{1}{3} r_3 \end{matrix} \left[\begin{array}{cc|c} 1 & 17/2 & 23/2 \\ 1 & -1 & 5 \\ 1 & -34/3 & 1 \end{array}\right]$$

$$\begin{matrix} r_2^* = r_2 - r_1 \\ \sim \\ r_3^* = r_3 - r_1 \end{matrix} \left[\begin{array}{cc|c} 1 & 17/2 & 23/2 \\ 0 & -19/2 & -13/2 \\ 0 & -119/6 & -21/2 \end{array}\right]$$

$$\begin{matrix} r_2^* = \frac{-2}{19} r_2 \\ \sim \\ r_3^* = \frac{-6}{119} r_3 \end{matrix} \left[\begin{array}{cc|c} 1 & 17/2 & 23/2 \\ 0 & 1 & 13/19 \\ 0 & 1 & 63/119 \end{array}\right]$$

$$\begin{matrix} r_3^* = r_3 - r_2 \\ \sim \end{matrix} \left[\begin{array}{cc|c} 1 & 17/2 & 23/2 \\ 0 & 1 & 13/19 \\ 0 & 0 & -50/323 \end{array}\right]$$

$$\begin{matrix} r_3^* = \frac{-323}{50} r_3 \\ \sim \end{matrix} \left[\begin{array}{cc|c} 1 & 17/2 & 23/2 \\ 0 & 1 & 13/19 \\ 0 & 0 & 1 \end{array}\right]$$

$$\begin{matrix} r_1^* = r_1 - \frac{23}{2} r_3 \\ \sim \\ r_2^* = r_2 - \frac{13}{19} r_3 \end{matrix} \left[\begin{array}{cc|c} 1 & 17/2 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{array}\right]$$

$$\begin{matrix} r_1^* = r_1 - \frac{17}{2} r_2 \\ \sim \end{matrix} \left[\begin{array}{cc|c} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{array}\right]$$

$$\Rightarrow \begin{cases} x = 6 \\ y = 0 \\ 0 = 1 \end{cases}$$