

$$\text{RREF} \begin{bmatrix} 1 & 2 & -1 \\ 2 & 0 & 6 \\ 4 & -1 & 3 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} 1 & -4 & 2 & 0 \\ 1 & -3 & 0 & 4 \\ -1 & 2 & 4 & 4 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 & 52 \\ 0 & 1 & 0 & 16 \\ 0 & 0 & 1 & 6 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} 1 & 0 & 1 \\ 3 & 3 & 3 \\ 5 & 3 & 5 \\ -6 & 5 & -6 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 1 \\ 0 & 1 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} 2 & 3 & -1 & -2 \\ 4 & 5 & -3 & -2 \\ -1 & 3 & 5 & -8 \end{bmatrix} = \begin{bmatrix} 1 & 0 & -2 & 2 \\ 0 & 1 & 1 & -2 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} -1 & -5 & -4 & -29 \\ -1 & -4 & -3 & -24 \\ 1 & 10 & 8 & 54 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 & 4 \\ 0 & 1 & 0 & 5 \\ 0 & 0 & 1 & 0 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} -1 & 5 & -3 & -12 \\ 1 & -3 & 3 & 4 \\ -2 & 11 & -6 & -28 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 3 & -8 \\ 0 & 1 & 0 & -4 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} -4 & 1 & -2 & -30 \\ 1 & 28 & -52 & -33 \\ 0 & 7 & -13 & -10 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 & 7 \\ 0 & 1 & 0 & 6 \\ 0 & 0 & 1 & 4 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} 2 & 2 & 4 & 2 \\ -14 & -9 & -18 & 11 \\ -3 & -2 & -4 & 2 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 & -4 \\ 0 & 1 & 2 & 5 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\left[\begin{array}{ccc|c} 2 & 3 & -1 & 4 \\ 4 & 5 & -3 & -4 \\ -1 & 3 & 5 & 7 \end{array} \right] \right) = \left[\begin{array}{ccc|c} 1 & 0 & -2 & 0 \\ 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{ccc|c} 1 & 1 & 2 & 5 \\ -2 & -1 & 3 & 1 \\ 2 & 0 & 2 & 2 \end{array} \right] \right) = \left[\begin{array}{ccc|c} 1 & 0 & 0 & -\frac{1}{6} \\ 0 & 1 & 0 & \frac{17}{6} \\ 0 & 0 & 1 & \frac{7}{6} \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{cccc|c} 0 & 1 & -3 & 4 & 1 \\ 2 & -2 & 1 & 0 & -1 \\ 2 & -1 & -2 & 4 & 0 \\ -6 & 4 & 3 & -8 & 1 \end{array} \right] \right) = \left[\begin{array}{cccc|c} 1 & 0 & -5/2 & 4 & 1/2 \\ 0 & 1 & -3 & 4 & 1 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{cccc|c} 3 & -3 & 5 & 5 & 46 \\ 1 & 3 & 4 & -5 & -19 \\ 2 & 1 & -4 & -4 & -34 \\ -6 & -4 & 1 & 3 & 26 \end{array} \right] \right) = \left[\begin{array}{cccc|c} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & -2 \\ 0 & 0 & 1 & 0 & 3 \\ 0 & 0 & 0 & 1 & 5 \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{ccc|c} 3 & -5 & -2 & 11 \\ -3 & -1 & -4 & -5 \\ 4 & 0 & 4 & 8 \end{array} \right] \right) = \left[\begin{array}{ccc|c} 1 & 0 & 1 & 2 \\ 0 & 1 & 1 & -1 \\ 0 & 0 & 0 & 0 \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{ccc|c} -3 & -3 & -4 & 8 \\ 5 & 5 & -1 & 4 \\ -2 & -2 & 3 & 12 \end{array} \right] \right) = \left[\begin{array}{ccc|c} 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{cccc|c} 0 & 2 & 2 & 4 & 0 \\ 1 & 0 & -1 & -3 & 0 \\ 2 & 3 & 1 & -1 & 0 \\ -2 & 1 & 3 & -2 & 0 \end{array} \right] \right) = \left[\begin{array}{cccc|c} 1 & 0 & -1 & 0 & 0 \\ 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{ccc|c} 1 & 2 & 3 & 6 \\ 0 & 1 & 1 & 2 \\ 2 & 3 & 5 & 5 \\ -1 & 1 & 0 & 0 \end{array} \right] \right) = \left[\begin{array}{ccc|c} 1 & 0 & 1 & 0 \\ 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{cc|c} 3 & -2 & -19 \\ 2 & 2 & 4 \\ -5 & -2 & 5 \\ -3 & 3 & -6 \end{array} \right] \right) = \left[\begin{array}{cc|c} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{ccc|c} 1 & -2 & 10 & -10 \\ 2 & 4 & -12 & 14 \\ -2 & 3 & -16 & 21 \\ -3 & -5 & 14 & -16 \end{array} \right] \right) = \left[\begin{array}{ccc|c} 1 & 0 & 2 & 0 \\ 0 & 1 & -4 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{cc|c} 0 & -2 & 22 \\ -1 & 0 & -13 \\ -4 & -3 & -17 \end{array} \right] \right) = \left[\begin{array}{cc|c} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{ccc|c} 3 & -2 & -8 & 18 \\ 5 & -1 & 3 & -19 \\ 1 & -2 & -12 & 34 \end{array} \right] \right) = \left[\begin{array}{ccc|c} 1 & 0 & 2 & -8 \\ 0 & 1 & 7 & -21 \\ 0 & 0 & 0 & 0 \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{cc|c} 1 & 5 & -3 \\ 2 & 6 & -2 \\ 3 & 7 & -1 \\ 4 & 8 & 0 \end{array} \right] \right) = \left[\begin{array}{cc|c} 1 & 0 & 2 \\ 0 & 1 & -1 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{cc|c} -2 & 4 & 1 \\ 1 & 8 & 2 \\ -4 & 3 & 1 \\ -1 & -8 & -2 \end{array} \right] \right) = \left[\begin{array}{cc|c} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{ccc|c} -1 & 1 & -3 & -2 \\ -2 & 1 & -6 & 0 \\ -1 & 1 & -3 & 1 \end{array} \right] \right) = \left[\begin{array}{ccc|c} 1 & 3 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{ccc|c} -9 & 6 & 2 & 8 \\ -7 & 4 & 1 & 2 \\ -5 & 3 & 1 & 3 \end{array} \right] \right) = \left[\begin{array}{ccc|c} 1 & 0 & 0 & 2 \\ 0 & 1 & 0 & 3 \\ 0 & 0 & 1 & 4 \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{cc} 8 & -3 \\ -5 & 2 \\ 1 & 0 \end{array} \right] \right) = \left[\begin{array}{cc} 1 & 0 \\ 0 & 1 \\ 0 & 0 \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{ccc} -4 & 6 & 7 \\ -1 & 3 & 3 \\ -1 & 1 & 1 \end{array} \right] \right) = \left[\begin{array}{ccc} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{array} \right]$$

$$\text{RREF} \left(\left[\begin{array}{ccc} -4 & -2 & -1 \\ 6 & 3 & 1 \\ 7 & 3 & 1 \end{array} \right] \right) = \left[\begin{array}{ccc} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{array} \right]$$

$$\text{RREF} \left(\begin{bmatrix} 2 & -9 & 0 & 1 \\ 0 & -3 & 1 & -1 \\ 4 & 0 & 0 & -1 \\ 2 & 9 & 2 & -1 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} 3 & -2 & -3 \\ 2 & -3 & -1 \\ -1 & 2 & 5 \\ 4 & 5 & 0 \\ 1 & 1 & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 2 & -5 & 5 \\ -2 & 5 & 3 \\ -1 & 0 & 5 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 4 & -4 & -4 \\ 1 & -1 & -1 \\ 3 & -5 & -1 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & -2 \\ 0 & 1 & -1 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -3 & 5 & -3 \\ 2 & -5 & 2 \\ 0 & -4 & -5 \\ 2 & 5 & -2 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} -2 & 0 & -4 & 5 & -3 \\ 2 & 0 & 1 & 1 & 3 \\ -3 & -1 & 2 & -1 & -4 \\ 3 & -5 & 3 & 4 & 5 \\ -3 & 4 & -2 & -3 & -2 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -1 & 6 & 4 \\ 5 & 3 & -5 \\ 1 & 2 & 5 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -3 & 0 & 6 \\ 1 & 3 & 7 \\ 5 & 3 & -1 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & -2 \\ 0 & 1 & 3 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 2 & -1 & -3 \\ -3 & -4 & -3 \\ -2 & 5 & -4 \\ 4 & 5 & -3 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 4 & 5 & 25 \\ -3 & 5 & -10 \\ 3 & -4 & 11 \\ 2 & -5 & 5 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 5 \\ 0 & 1 & 1 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 2 & -1 & 5 \\ 1 & 3 & 2 \\ 1 & 2 & -4 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 1 & -3 & 4 \\ 2 & -1 & 2 & 5 \\ 0 & 1 & -1 & 3 \\ 2 & 0 & 1 & 8 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 2 & -9 & 0 & 1 \\ 0 & -3 & 1 & -1 \\ 4 & 0 & 0 & -1 \\ 2 & 9 & 2 & -1 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 2 & 3 & -1 \\ -1 & 1 & 2 & 4 \\ 0 & 3 & 5 & 3 \\ 1 & -1 & 8 & 1 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & -17/6 \\ 0 & 1 & 0 & 1/6 \\ 0 & 0 & 1 & 1/2 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 2 & 5 & 7 \\ 7 & -4 & 1 \\ -5 & -2 & -7 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -1 & -7 & -1 & 6 \\ 3 & -5 & 4 & 5 \\ -4 & -4 & -4 & -6 \\ 6 & -1 & -6 & -7 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -2 & 1 & 8 \\ -3 & -1 & 7 \\ 7 & -5 & -31 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & -3 \\ 0 & 1 & 2 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -4 & 8 & 36 & 28 \\ -3 & -4 & -23 & -9 \\ 4 & -7 & -31 & -25 \\ 4 & -3 & -11 & -13 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 1 & -1 \\ 0 & 1 & 5 & 3 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -1 & 5 & -3 \\ 1 & -3 & 3 \\ -2 & 11 & -6 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 3 \\ 0 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -1 & 5 & -3 & -12 \\ 1 & -3 & 3 & 4 \\ -2 & 11 & -6 & -28 \\ -12 & 0 & -2 & 3 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & -7/34 \\ 0 & 1 & 0 & -4 \\ 0 & 0 & 1 & -93/34 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 2 & -9 & 0 & 1 \\ 0 & -3 & 1 & -1 \\ 4 & 0 & 0 & -1 \\ 2 & 9 & 2 & -1 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 1 & 3 \\ 2 & 1 & 4 \\ 1 & 1 & 3 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 3 \\ 0 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 3 & 11 & 7 \\ 2 & 2 & 10 & 6 \\ 2 & 1 & 7 & 4 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 2 & 1 \\ 0 & 1 & 3 & 2 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 0 & 1 & 1 & -1 \\ 1 & 1 & 0 & 1 & -5 \\ 0 & 2 & 1 & -6 & 1 \\ -1 & 1 & -1 & -3 & 0 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & 3 & -4 \\ 0 & 1 & 0 & -2 & -1 \\ 0 & 0 & 1 & -2 & 3 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 0 & 1 & 2 \\ 1 & 1 & 0 & 3 \\ -2 & 0 & -2 & -4 \\ 1 & 1 & 0 & 3 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 1 & 2 \\ 0 & 1 & -1 & 1 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 0 & -1 & 1 \\ 0 & 1 & 1 & 1 \\ 0 & 1 & 1 & 1 \\ 1 & 0 & -1 & 1 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & -1 & 1 \\ 0 & 1 & 1 & 1 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -1 & 5 & -3 & -12 \\ 1 & -3 & 3 & 4 \\ -2 & 11 & -6 & -28 \\ -12 & 0 & -2 & 3 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & 0.20588 \\ 0 & 1 & 0 & -4 \\ 0 & 0 & 1 & -2.73529 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 2 & 8 & 4 \\ 1 & 1 & 5 & 1 \\ 0 & 1 & 3 & 1 \\ 1 & 1 & 5 & 1 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 2 & 0 \\ 0 & 1 & 3 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 2 & 2 & 3 & 4 \\ -1 & -2 & -7 & 3 \\ 1 & 1 & 0 & 1 \\ 3 & 1 & -3 & 2 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 2 & 2 & 3 & 4 \\ -1 & -2 & -7 & 3 \\ 1 & 1 & 0 & 1 \\ 3 & 3 & -3 & 2 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 2 & 4 & 2 & 8 & 3 & -4 \\ -1 & -2 & -2 & -7 & -7 & 13 \\ 1 & 2 & 1 & 4 & 0 & 1 \\ 3 & 6 & 1 & 6 & 3 & 9 \end{bmatrix} \right) = \begin{bmatrix} 1 & 2 & 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 3 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & -2 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 2 & 4 & 0 \\ 1 & 3 & 1 & 1 \\ -1 & 4 & -1 & -1 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & 4/3 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & -1/3 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 3 & 1 \\ -1 & -1 & 0 \\ 0 & 2 & 0 \\ 2 & 1 & 1 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 3 & -1 & 0 \\ 2 & 2 & 1 \\ 2 & 1 & 0 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 0 & -1 & 1 & 2 \\ 0 & 1 & 1 & 1 \\ 1 & 1 & 0 & 2 \\ 1 & 2 & 0 & 1 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 2 & 8 & 4 \\ 1 & 1 & 5 & 1 \\ 0 & 1 & 3 & 1 \\ 1 & 1 & 5 & 1 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 2 & 0 \\ 0 & 1 & 3 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 0 & 1 & 1 \\ 1 & 1 & 0 & 1 \\ 0 & 2 & 1 & -6 \\ -1 & 1 & -1 & -3 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & 3 \\ 0 & 1 & 0 & -2 \\ 0 & 0 & 1 & -2 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 0 & 1 & 2 \\ 1 & 1 & 0 & 3 \\ -2 & 0 & -2 & -4 \\ 1 & 1 & 0 & 3 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 1 & 2 \\ 0 & 1 & -1 & 1 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 0 & -1 & 1 \\ 0 & 1 & 1 & 1 \\ 0 & 1 & 1 & 1 \\ 1 & 0 & -1 & 1 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & -1 & 1 \\ 0 & 1 & 1 & 1 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & -1 & 1 & 3 \\ 2 & -2 & 2 & 6 \\ 3 & -3 & -3 & -9 \\ 4 & -4 & 4 & 12 \end{bmatrix} \right) = \begin{bmatrix} 1 & -1 & 0 & 0 \\ 0 & 0 & 1 & 3 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 2 & 3 & 0 \\ -7 & 2 & -2 \\ 0 & 2 & 4 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -6 & 4 & -2 & -34 & 0 \\ 1 & -3 & -9 & 1 & 0 \\ 4 & 8 & 44 & 44 & 0 \\ -7 & -1 & -25 & -51 & 0 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 3 & 7 & 0 \\ 0 & 1 & 4 & 2 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -2 & -4 & -8 & -7 & 0 \\ 1 & 7 & 19 & -6 & 0 \\ 3 & -1 & -9 & 0 & 0 \\ -7 & 3 & 23 & -5 & 0 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & -2 & 0 & 0 \\ 0 & 1 & 3 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -7 & -5 & -6 & -24 & 0 \\ 2 & -5 & 3 & 21 & 0 \\ -7 & 4 & -2 & -38 & 0 \\ -9 & -3 & 5 & -25 & 0 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & 4 & 0 \\ 0 & 1 & 0 & -2 & 0 \\ 0 & 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 4 & 9 & 30 & -8 & 0 \\ 5 & -8 & -1 & -7 & 0 \\ 2 & 2 & 10 & -8 & 0 \\ 4 & 2 & 16 & 3 & 0 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 3 & 0 & 0 \\ 0 & 1 & 2 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 3 & -5 & -2 & 0 \\ -3 & -1 & -4 & 0 \\ 4 & 0 & 4 & 0 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 0 & 1 & -3 & 4 & 0 \\ 2 & -2 & 1 & 0 & 0 \\ 2 & -1 & -2 & 4 & 0 \\ -6 & 4 & 3 & -8 & 0 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & -5/2 & 4 & 0 \\ 0 & 1 & -3 & 4 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 1 & -1 & 3 & -1 & 0 \\ -2 & -2 & 2 & -1 & -3 & 0 \\ 1 & 1 & -1 & 0 & 2 & 0 \end{bmatrix} \right) = \begin{bmatrix} 1 & 1 & -1 & 0 & 2 & 0 \\ 0 & 0 & 0 & 1 & -1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -3 & -5 & 1 & 0 \\ -2 & 2 & 3 & 0 \\ -3 & 0 & 3 & 0 \\ -5 & 2 & 6 & 0 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -2 & 1 & -1 & 0 \\ 1 & 4 & 2 & 0 \\ -1 & 5 & 1 & 0 \\ -3 & 6 & 0 & 0 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 2/3 & 0 \\ 0 & 1 & 1/3 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -4 & -7 & -1 & 0 \\ 4 & -1 & -2 & 0 \\ 0 & -8 & -3 & 0 \\ 8 & -2 & -4 & 0 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & -13/32 & 0 \\ 0 & 1 & 3/8 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 5 & -1 & -3 & 0 \\ 5 & 8 & -1 & 0 \\ 0 & -7 & -2 & 0 \\ 5 & -8 & -5 & 0 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 1 & 2 & 0 \\ -2 & -1 & 3 & 0 \\ 2 & 0 & 2 & 0 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 0 & 2 & 2 & 4 & 0 \\ 1 & 0 & -1 & -3 & 0 \\ 2 & 3 & 1 & -1 & 0 \\ -2 & 1 & 3 & -2 & 0 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & -1 & 0 & 0 \\ 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 4 \\ 0 & 1 \\ 3 & 2 \\ 5 & -1 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 \\ 0 & 1 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 2 & 5 & 0 \\ 3 & 0 & 1 \\ 0 & -1 & 1 \\ 1 & 1 & 1 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -5 & 3 \\ -4 & -4 \\ -1 & 5 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 \\ 0 & 1 \\ 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -3 & 2 & -8 \\ 5 & -5 & 15 \\ 3 & -2 & 8 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 1 & -1 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -5 & -4 & -7 \\ -4 & -2 & -2 \\ -2 & 1 & 5 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & -1 \\ 0 & 1 & 3 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -3 & -5 \\ -2 & 3 \\ 4 & -5 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 \\ 0 & 1 \\ 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 4 & -5 \\ 5 & 1 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}.$$

$$\text{RREF} \left(\begin{bmatrix} -4 & 3 & 0 & 5 \\ -4 & 3 & 0 & 5 \\ -2 & 5 & 14 & -1 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 3 & -2 \\ 0 & 1 & 4 & -1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & -5 \\ -1 & -3 \\ 0 & -3 \\ -4 & 2 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 \\ 0 & 1 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}.$$

$$\text{RREF} \left(\begin{bmatrix} -1 & -5 & 0 & -17 \\ -1 & 2 & -7 & 4 \\ 4 & 4 & 16 & 20 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 5 & 2 \\ 0 & 1 & -1 & 3 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} -1 & -5 & -4 & -29 \\ -1 & -4 & -3 & -24 \\ 1 & 10 & 8 & 54 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 & 4 \\ 0 & 1 & 0 & 5 \\ 0 & 0 & 1 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 2 & 2 \\ -14 & -9 \\ -3 & -2 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 \\ 0 & 1 \\ 0 & 0 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} -4 & 1 & 0 \\ 1 & 28 & 7 \\ -2 & -52 & -13 \\ -30 & -33 & -10 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \\ 7 & 6 & 4 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} 1 & 0 & 1 \\ 3 & 3 & 3 \\ 5 & 3 & 5 \\ -6 & 5 & -6 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 1 \\ 0 & 1 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} 3 & -5 & -2 \\ -3 & -1 & -4 \\ 4 & 0 & 4 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 1 \\ 0 & 1 & 1 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} 3 & -3 & 5 \\ 1 & 3 & 4 \\ 2 & 1 & -4 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} -3 & -4 \\ 3 & 2 \\ 4 & 0 \\ 2 & -5 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} 2 & 0 & 1 & -1 \\ 1 & -1 & 1 & 3 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0.5 & -0.5 \\ 0 & 1 & -0.5 & -3.5 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} -2 & -3 & 0 \\ -5 & -5 & 0 \\ 3 & -4 & 4 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} 3 & 3 & 3 \\ -2 & -2 & -2 \\ -3 & -4 & -3 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 1 \\ 0 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} 2 & 2 & 3 & 1 \\ 4 & 2 & -4 & -4 \\ 0 & -3 & 1 & 5 \\ -2 & 0 & 2 & -1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \begin{bmatrix} 4 & -1 & -1 & 5 \\ 5 & 4 & 4 & 0 \\ -2 & 1 & 1 & -5 \\ 3 & 2 & 2 & 2 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} -3 & -5 & 1 \\ -2 & 2 & 3 \\ -3 & 0 & 3 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 0 & 2 & 2 & 4 \\ 1 & 0 & -1 & -3 \\ 2 & 3 & 1 & -1 \\ -2 & 1 & 3 & -2 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & -1 & 0 \\ 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 2 & 2 & 3 & 4 \\ -1 & -2 & -7 & 3 \\ 1 & 1 & 0 & 1 \\ 3 & 1 & -3 & 2 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$\text{RREF} \left(\begin{bmatrix} 1 & 3 & 11 \\ 2 & 2 & 10 \\ 2 & 1 & 7 \end{bmatrix} \right) = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 1 & 3 \\ 0 & 0 & 0 \end{bmatrix}$$

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

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

$$\left[\begin{array}{cccc|cccc} 1 & 1 & 1 & 1 & 1 & 0 & 0 & 0 \\ 1 & 2 & -1 & 2 & 0 & 1 & 0 & 0 \\ 1 & -1 & 2 & 1 & 0 & 0 & 1 & 0 \\ 1 & 3 & 3 & 2 & 0 & 0 & 0 & 1 \end{array} \right] \sim \left[\begin{array}{cccc|cccc} 1 & 0 & 0 & 0 & 7/3 & -1/3 & -1/3 & -2/3 \\ 0 & 1 & 0 & 0 & 4/9 & -1/9 & -4/9 & 1/9 \\ 0 & 0 & 1 & 0 & -1/9 & -2/9 & 1/9 & 2/9 \\ 0 & 0 & 0 & 1 & -5/3 & 2/3 & 2/3 & 1/3 \end{array} \right]$$

$$\left[\begin{array}{cccc|cccc} 1 & 1 & 2 & 1 & 1 & 0 & 0 & 0 \\ 0 & -2 & 0 & 0 & 0 & 1 & 0 & 0 \\ 1 & 2 & 1 & -2 & 0 & 0 & 1 & 0 \\ 0 & 3 & 2 & 1 & 0 & 0 & 0 & 1 \end{array} \right] \sim \left[\begin{array}{cccc|cccc} 1 & 0 & 0 & 0 & 1 & -1 & 0 & -1 \\ 0 & 1 & 0 & 0 & 0 & -1/2 & 0 & 0 \\ 0 & 0 & 1 & 0 & -1/5 & 1 & 1/5 & 3/5 \\ 0 & 0 & 0 & 1 & 2/5 & -1/2 & -2/5 & -1/5 \end{array} \right]$$

$$\text{RREF} \left[\begin{array}{cccc|cccc} 1 & 2 & -1 & 2 & 1 & 0 & 0 & 0 \\ 2 & -1 & 3 & 1 & 0 & 1 & 0 & 0 \\ 1 & 1 & 0 & 1 & 0 & 0 & 1 & 0 \\ 3 & 1 & -3 & 2 & 0 & 0 & 0 & 1 \end{array} \right] \sim \left[\begin{array}{cccc|cccc} 1 & 0 & 0 & 0 & -0.9 & -0.1 & 1.5 & 0.2 \\ 0 & 1 & 0 & 0 & -0.6 & -0.4 & 2 & -0.2 \\ 0 & 0 & 1 & 0 & -0.1 & 0.1 & 0.5 & -0.2 \\ 0 & 0 & 0 & 1 & 1.5 & 0.5 & -2.5 & 0 \end{array} \right]$$

$$\text{RREF} \left[\begin{array}{ccc|ccc} 1 & 2 & -1 & 1 & 0 & 0 \\ 2 & 1 & 3 & 0 & 1 & 0 \\ 1 & 1 & 2 & 0 & 0 & 1 \end{array} \right] \sim \left[\begin{array}{ccc|ccc} 1 & 0 & 0 & 0.25 & 1.25 & -1.75 \\ 0 & 1 & 0 & 0.25 & -0.75 & 1.25 \\ 0 & 0 & 1 & -0.25 & -0.25 & 0.75 \end{array} \right]$$

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

$$\text{RREF} \left[\begin{array}{cccc|cccc} -1 & 2 & 1 & -2 & 1 & 0 & 0 & 0 \\ 1 & -2 & 2 & 1 & 0 & 1 & 0 & 0 \\ 1 & -1 & 2 & -1 & 0 & 0 & 1 & 0 \\ 2 & -1 & 2 & -2 & 0 & 0 & 0 & 1 \end{array} \right] \sim \left[\begin{array}{cccc|cccc} 1 & 0 & 0 & 0 & 0.5 & 1.25 & -3.25 & 1.75 \\ 0 & 1 & 0 & 0 & 1 & 1.5 & -3.5 & 1.5 \\ 0 & 0 & 1 & 0 & 0.5 & 0.75 & -0.75 & 0.25 \\ 0 & 0 & 0 & 1 & 0.5 & 1.25 & -2.25 & 0.75 \end{array} \right]$$

$$\begin{aligned}
& \text{RREF} \left(\left[\begin{array}{cccc|c} 0 & 0 & 0 & 0 & 0 \\ -10 & 15 & 0 & -3 & 0 \\ -40 & 0 & 24 & 0 & 0 \\ 0 & 0 & 0 & 18 & 0 \end{array} \right] \right) = \left[\begin{array}{cccc|c} 1 & 0 & -3/5 & 0 & 0 \\ 0 & 1 & -2/5 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{array} \right] \\
& \text{RREF} \left(\left[\begin{array}{cccc|c} 24 & -219 & 129 & -153 & 0 \\ 66 & -282 & 248 & -314 & 0 \\ -21 & 123 & -90 & 111 & 0 \\ -51 & 168 & -175 & 226 & 0 \end{array} \right] \right) = \left[\begin{array}{cccc|c} 1 & 0 & 7/3 & -10/3 & 0 \\ 0 & 1 & -1/3 & 1/3 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{array} \right] \\
& \text{RREF} \left(\left[\begin{array}{cccc|c} 207 & -219 & -153 & 129 & 0 \\ 66 & -99 & -314 & 248 & 0 \\ -21 & 123 & 172 & 32 & 0 \\ -51 & 168 & 348 & -114 & 0 \end{array} \right] \right) = \left[\begin{array}{cccc|c} 1 & 0 & 0 & 2 & 0 \\ 0 & 1 & 0 & 2 & 0 \\ 0 & 0 & 1 & -1 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{array} \right] \\
& \text{RREF} \left(\left[\begin{array}{cccc|c} -156 & -170 & 160 & 220 & 0 \\ 240 & 688 & 64 & -1424 & 0 \\ 6 & -29 & -32 & 82 & 0 \\ 156 & 478 & 64 & -1004 & 0 \end{array} \right] \right) = \left[\begin{array}{cccc|c} 1 & 0 & -20/11 & 15/11 & 0 \\ 0 & 1 & 8/11 & -28/11 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{array} \right] \\
& \text{RREF} \left(\left[\begin{array}{cccc|c} -2 & -2 & 1 & 0 & 0 \\ 0 & -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & 0 & 0 \\ 2 & 2 & -1 & 0 & 0 \end{array} \right] \right) = \left[\begin{array}{cccc|c} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{array} \right] \\
& \text{RREF} \left(\left[\begin{array}{cccc|c} -1 & -2 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 2 & 2 & -1 & 1 & 0 \end{array} \right] \right) = \left[\begin{array}{cccc|c} 1 & 0 & 0 & 1 & 0 \\ 0 & 1 & -0.5 & -0.5 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{array} \right] \\
& \text{RREF} \left(\left[\begin{array}{cccc|c} 1 & 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 2 & 0 & 0 & -1 & 0 \\ 0 & 0 & 0 & -1 & 0 \end{array} \right] \right) = \left[\begin{array}{cccc|c} 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{array} \right] \\
& \text{RREF} \left(\left[\begin{array}{cccc|c} 2 & 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 2 & 0 & 1 & -1 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{array} \right] \right) = \left[\begin{array}{cccc|c} 1 & 0 & 0 & -0.5 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{array} \right]
\end{aligned}$$