

5.2 p344

37.

$$x + 2y = 3$$

$$3x - y = 2$$

$$\left[\begin{array}{cc|c} 1 & 2 & 3 \\ 3 & -1 & 2 \end{array} \right]$$

$R_1 \cdot 3$
 $+R_2$
 New R_2

$$\left[\begin{array}{cc|c} 1 & 2 & 3 \\ 0 & -7 & -7 \end{array} \right]$$

R_2
 $\frac{-1}{-7}$

$$\left[\begin{array}{cc|c} 1 & 2 & 3 \\ 0 & 1 & 1 \end{array} \right]$$

New R_2

$R_2 \cdot -2$
 $+R_1$
 New R_1

$$\left[\begin{array}{cc|c} 1 & 0 & 1 \\ 0 & 1 & 1 \end{array} \right] \quad \begin{array}{l} x=1 \\ y=1 \end{array}$$

$(1, 1)$

$$25. \quad A = \begin{bmatrix} 5 & 0 & 0 \\ 0 & -8 & 0 \\ 0 & 0 & 7 \end{bmatrix} \quad B = \begin{bmatrix} \frac{1}{5} & 0 & 0 \\ 0 & -\frac{1}{8} & 0 \\ 0 & 0 & -\frac{1}{2} \end{bmatrix}$$

$$\left[\begin{array}{ccc} 5\left(\frac{1}{5}\right) + 0(0) + 0(0) & 5(0) + 0\left(-\frac{1}{8}\right) + 0(0) & 5(0) + 0(0) + 0\left(-\frac{1}{2}\right) \\ 0\left(\frac{1}{5}\right) + -8(0) + 0(0) & 0(0) + -8\left(-\frac{1}{8}\right) + 0(0) & 0(0) + -8(0) + 0\left(-\frac{1}{2}\right) \\ 0\left(\frac{1}{5}\right) + 0(0) + 7(0) & 0(0) + 0\left(-\frac{1}{8}\right) + 7(0) & 0(0) + 0(0) + 7\left(-\frac{1}{2}\right) \end{array} \right]$$

$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & -\frac{7}{2} \end{bmatrix}$$

5.3 Inverse p353

2x2

$$A = \begin{bmatrix} 3 & -1 \\ -2 & 2 \end{bmatrix}$$

$$A^{-1} = \frac{1}{3(2) - (-1)(2)} \begin{bmatrix} 2 & 1 \\ 2 & 3 \end{bmatrix}$$

$$A^{-1} = \frac{1}{4} \begin{bmatrix} 2 & 1 \\ 2 & 3 \end{bmatrix}$$

$$A^{-1} = \begin{bmatrix} \frac{1}{2} & \frac{1}{4} \\ \frac{1}{2} & \frac{3}{4} \end{bmatrix}$$

$$A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

$$A^{-1} = \frac{1}{ad - bc} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$$

$$A = \begin{bmatrix} 2 & 3 \\ 4 & 6 \end{bmatrix}$$

$$A^{-1} = \frac{1}{ad-bc} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$$

$$A^{-1} = \frac{1}{12-12} \begin{bmatrix} 6 & -3 \\ -4 & 2 \end{bmatrix}$$

$$A^{-1} = \frac{1}{0} \begin{bmatrix} 6 & -3 \\ -4 & 2 \end{bmatrix}$$

No inverse exists

11, 13 hand

27. p332

$$\begin{array}{ccc|c} x & y & z & c \\ \hline 1 & 0 & 1.5 & 1.5 \\ 0 & 1 & -\frac{1}{3} & \frac{1}{3} \\ 0 & 0 & 0 & 0 \end{array}$$

$$x + \frac{3}{2}z = \frac{3}{2}$$

$$y - \frac{1}{3}z = \frac{1}{3}$$

$$z = a$$

$$y - \frac{1}{3}a = \frac{1}{3}$$

$$y = \frac{1}{3}a + \frac{1}{3}$$

$$x + \frac{3}{2}a = \frac{3}{2}$$

$$x = -\frac{3}{2}a + \frac{3}{2}$$

$$\left(-\frac{3}{2}a + \frac{3}{2}, \frac{1}{3}a + \frac{1}{3}, a \right)$$