

121 §6.2 #5 1, 5, 9, 13, 17, 21, 25, 29, 33, 37, 41,
45, 49, 53

#s 1-4 Determine x, y, z if the eq'n is true.

$$\textcircled{1} \begin{bmatrix} x \\ 5 \end{bmatrix} = \begin{bmatrix} 2 \\ y \end{bmatrix} \Rightarrow \boxed{\begin{array}{l} x=2 \\ y=5 \end{array}}$$

#s 5-10 Find the sums

$$\textcircled{5} \begin{bmatrix} 3 \\ 5 \end{bmatrix} + \begin{bmatrix} 2 \\ 1 \end{bmatrix} = \begin{bmatrix} 5 \\ 6 \end{bmatrix}$$

$$\textcircled{9} \begin{bmatrix} 2 & -3 & 4 \\ 4 & -6 & 8 \\ 6 & -3 & 1 \end{bmatrix} + \begin{bmatrix} 1 & -1 & 1 \\ 0 & 1 & -1 \\ 0 & 0 & 1 \end{bmatrix}$$

$$= \begin{bmatrix} 3 & -4 & 5 \\ 4 & -5 & 7 \\ 6 & -3 & 2 \end{bmatrix}$$

#s 11-14 Find $-A$ & $A + (-A)$

$$\textcircled{13} A = \begin{bmatrix} 3 & 0 & -1 \\ 8 & -2 & 1 \\ -3 & 6 & 3 \end{bmatrix} \Rightarrow$$

$$-A = \begin{bmatrix} -3 & 0 & 1 \\ -8 & 2 & -1 \\ 3 & -6 & -3 \end{bmatrix} \text{ \& } A + (-A) = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

121 8 6.2 #5 17, 21, 25, 29, 33, 37, 41, 45, 53, 57

#5 15-34 Let

$$A = \begin{bmatrix} -4 & 1 \\ 3 & 0 \end{bmatrix}, B = \begin{bmatrix} -1 & -2 \\ 7 & 4 \end{bmatrix}, C = \begin{bmatrix} -3 & -4 \\ 2 & -5 \end{bmatrix},$$

$$D = \begin{bmatrix} -4 \\ 5 \end{bmatrix}, E = \begin{bmatrix} -1 \\ 2 \end{bmatrix}.$$

$$(17) B - C = \begin{bmatrix} 2 & 2 \\ 5 & 9 \end{bmatrix}$$

$$(21) 3A = \begin{bmatrix} -12 & 3 \\ 9 & 0 \end{bmatrix}$$

$$(25) 3A + 3C = \begin{bmatrix} -12 & 3 \\ 9 & 0 \end{bmatrix} + \begin{bmatrix} -9 & -12 \\ 6 & -15 \end{bmatrix}$$

$$= \begin{bmatrix} -21 & -9 \\ 15 & -15 \end{bmatrix}$$

$$(29) 2D - 3E = \begin{bmatrix} -8 \\ 10 \end{bmatrix} + \begin{bmatrix} 3 \\ -6 \end{bmatrix} = \begin{bmatrix} -5 \\ 4 \end{bmatrix}$$

$$(33) (A+B) + C = \begin{bmatrix} -4 & 1 \\ 3 & 0 \end{bmatrix} + \begin{bmatrix} -1 & -2 \\ 7 & 4 \end{bmatrix} + \begin{bmatrix} -3 & -4 \\ 2 & -5 \end{bmatrix}$$

$$= \begin{bmatrix} -5 & -1 \\ 10 & 4 \end{bmatrix} + \begin{bmatrix} -3 & -4 \\ 2 & -5 \end{bmatrix} = \begin{bmatrix} -8 & -5 \\ 12 & -1 \end{bmatrix}$$

121 § 6.2 #s 37, 41, 45, 53, 57

#s 35-52 Perform the indicated operations, if possible. If it's not possible, state why.

$$\textcircled{37} \quad 3 \begin{bmatrix} \frac{1}{6} & \frac{1}{2} \\ 1 & -4 \end{bmatrix} = \begin{bmatrix} \frac{1}{2} & \frac{3}{2} \\ 3 & -12 \end{bmatrix}$$

$$\textcircled{41} \quad \begin{bmatrix} 1 & 3 & 7 \end{bmatrix} + \begin{bmatrix} -1 \\ 2 \\ 3 \end{bmatrix} \quad \begin{array}{l} \text{can't be done} \\ \text{Different} \\ \text{dimensions.} \end{array}$$

$$\textcircled{45} \quad [\sqrt{2} \quad 4 \quad \sqrt{2}] + [\sqrt{3} \quad -2 \quad \sqrt{3}]$$

$$= [\sqrt{2} + \sqrt{3} \quad 2 \quad \sqrt{2} + \sqrt{3}]$$

$$= [\sqrt{2} + 2\sqrt{2} \quad 2 \quad 2\sqrt{3} + \sqrt{3}]$$

$$= [3\sqrt{2} \quad 2 \quad 3\sqrt{3}]$$

121

S6, 2 # 5, 3, 5, 7

Write the system to which the matrix equation corresponds. Then solve.

$$\textcircled{53} \begin{bmatrix} x+y \\ x-y \end{bmatrix} = \begin{bmatrix} 5 \\ 1 \end{bmatrix} \Rightarrow$$

$$\begin{array}{l} x+y=5 \\ x-y=1 \end{array} \Rightarrow \left[\begin{array}{cc|c} 1 & 1 & 5 \\ 1 & -1 & 1 \end{array} \right] \sim \left[\begin{array}{cc|c} 1 & 1 & 5 \\ 0 & -2 & -4 \end{array} \right]$$

$$\sim \left[\begin{array}{cc|c} 1 & 1 & 5 \\ 0 & 1 & 2 \end{array} \right] \sim \left[\begin{array}{cc|c} 1 & 0 & 3 \\ 0 & 1 & 2 \end{array} \right] \Rightarrow \{(3, 2)\}$$

$$\textcircled{57} \begin{array}{l} x+y+z=8 \\ x-y-z=-7 \\ x-y+z=2 \end{array} \quad \left[\begin{array}{ccc|c} 1 & 1 & 1 & 8 \\ 1 & -1 & -1 & -7 \\ 1 & -1 & 1 & 2 \end{array} \right]$$

$$\sim \left[\begin{array}{ccc|c} 1 & 1 & 1 & 8 \\ 0 & -2 & -2 & -15 \\ 0 & -2 & 0 & -6 \end{array} \right] \sim \left[\begin{array}{ccc|c} 1 & 1 & 1 & 8 \\ 0 & 1 & 0 & 3 \\ 0 & 0 & 2 & 9 \end{array} \right]$$

$$\sim \left[\begin{array}{ccc|c} 1 & 0 & 1 & 5 \\ 0 & 1 & 0 & 3 \\ 0 & 0 & 1 & \frac{9}{2} \end{array} \right] \sim \left[\begin{array}{ccc|c} 1 & 0 & 0 & \frac{1}{2} \\ 0 & 1 & 0 & 3 \\ 0 & 0 & 1 & \frac{9}{2} \end{array} \right]$$

$$(x, y, z) \in \left\{ \left(\frac{1}{2}, 3, \frac{9}{2} \right) \right\}$$