

Answers HW textbook p. 577 – 578

$$3. 2x + 7 = 5 \implies x = -1$$

$$3y = 12 \implies y = 4$$

$$3z - 14 = 4 \implies z = 6$$

$$7. A = \begin{bmatrix} 8 & -1 \\ 2 & 3 \\ -4 & 5 \end{bmatrix}, B = \begin{bmatrix} 1 & 6 \\ -1 & -5 \\ 1 & 10 \end{bmatrix}$$

$$(a) A + B = \begin{bmatrix} 9 & 5 \\ 1 & -2 \\ -3 & 15 \end{bmatrix} \quad (b) A - B = \begin{bmatrix} 7 & -7 \\ 3 & 8 \\ -5 & -5 \end{bmatrix} \quad (c) 3A = \begin{bmatrix} 24 & -3 \\ 6 & 9 \\ -12 & 15 \end{bmatrix}$$

$$(d) 3A - 2B = \begin{bmatrix} 24 & -3 \\ 6 & 9 \\ -12 & 15 \end{bmatrix} - \begin{bmatrix} 2 & 12 \\ -2 & -10 \\ 2 & 20 \end{bmatrix} = \begin{bmatrix} 22 & -15 \\ 8 & 19 \\ -14 & -5 \end{bmatrix}$$

$$17. -3\left(\begin{bmatrix} 0 & -3 \\ 7 & 2 \end{bmatrix} + \begin{bmatrix} -6 & 3 \\ 8 & 1 \end{bmatrix}\right) - \begin{bmatrix} 4 & -4 \\ 7 & -9 \end{bmatrix} = -3\begin{bmatrix} -6 & 0 \\ 15 & 3 \end{bmatrix} - \begin{bmatrix} 4 & -4 \\ 7 & -9 \end{bmatrix} = \begin{bmatrix} 18 & 0 \\ -45 & -9 \end{bmatrix} - \begin{bmatrix} 4 & -4 \\ 7 & -9 \end{bmatrix} \\ = \begin{bmatrix} 14 & 4 \\ -52 & 0 \end{bmatrix}$$

33. A is 3×2 and B is $3 \times 3 \implies AB$ is not defined.

$$34. AB = \begin{bmatrix} 0 & -1 & 2 \\ 6 & 0 & 3 \\ 7 & -1 & 8 \end{bmatrix} \begin{bmatrix} 2 & -1 \\ 4 & -5 \\ 1 & 6 \end{bmatrix} = \begin{bmatrix} -2 & 17 \\ 15 & 12 \\ 18 & 46 \end{bmatrix}$$

$$35. AB = \begin{bmatrix} -1 & 6 \\ -4 & 5 \\ 0 & 3 \end{bmatrix} \begin{bmatrix} 2 & 3 \\ 0 & 9 \end{bmatrix} = \begin{bmatrix} -2 & 51 \\ -8 & 33 \\ 0 & 27 \end{bmatrix}$$

39. A is 2×1 and B is $1 \times 4 \implies AB$ is 2×4 .

$$AB = \begin{bmatrix} 10 \\ 11 \end{bmatrix} \begin{bmatrix} 4 & -2 & -1 & 8 \end{bmatrix} = \begin{bmatrix} 40 & -20 & -10 & 80 \\ 44 & -22 & -11 & 88 \end{bmatrix}$$