

$$8) A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 0 \end{bmatrix} \quad B = \begin{bmatrix} 0 & 2 \\ -1 & -2 \\ 3 & 4 \end{bmatrix}$$

$$(1 \times 0) + (2 \times -1) + (3 \times 3)$$

$$0 + -2 + 6 = -8$$

$$(1 \times 2) + (2 \times -2) + (3 \times 4)$$

$$2 + -4 + 12 = 10$$

$$(4 \times 0) + (5 \times -1) + (0 \times 3)$$

$$0 + -5 + 0 = -5$$

$$(4 \times 2) + (5 \times -2) + (0 \times 4)$$

$$8 + -10 + 0 = -2$$

$$A \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 0 \end{bmatrix} B \begin{bmatrix} 0 & 2 \\ -1 & -2 \\ 3 & 4 \end{bmatrix} = \begin{bmatrix} -8 & 10 \\ -5 & -2 \end{bmatrix}$$

$$6) A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix} \quad B = \begin{bmatrix} 1 & 5 & 7 \\ 2 & 3 & 0 \end{bmatrix}$$

$$(1 \times 1) + (2 \times 2)$$

$$1 + 4 = 5$$

$$(1 \times 5) + (2 \times 3)$$

$$5 + 6 = 11$$

$$(1 \times 7) + (2 \times 0)$$

$$7 + 0 = 7$$

$$(3 \times 1) + (4 \times 2)$$

$$3 + 8 = 11$$

$$(3 \times 5) + (4 \times 3)$$

$$15 + 12 = 27$$

$$(3 \times 7) + (4 \times 0)$$

$$21 + 0 = 21$$

$$(5 \times 1) + (6 \times 2)$$

$$5 + 12 = 17$$

$$(5 \times 5) + (6 \times 3)$$

$$25 + 18 = 43$$

$$(5 \times 7) + (6 \times 0)$$

$$35 + 0 = 35$$

$$A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix} \quad B = \begin{bmatrix} 1 & 5 & 7 \\ 2 & 3 & 0 \end{bmatrix} = \begin{bmatrix} 5 & 11 & 7 \\ 11 & 27 & 21 \\ 17 & 39 & 35 \end{bmatrix}$$

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

$$(4 \times 2) + (-3 \times 0) + (1 \times -4)$$

$$8 + 0 + -4 = 12$$

$$(4 \times 1) + (-3 \times 1) + (1 \times 7)$$

$$4 + -3 + 7 = 14$$

$$(-5 \times 2) + (2 \times 0) + (2 \times -4)$$

$$-10 + 0 + -8 = -18$$

$$(-5 \times 1) + (2 \times 1) + (2 \times 7)$$

$$-5 + 2 + 14 = 11$$

$$A \begin{bmatrix} 4 & -3 & 1 \\ -5 & 2 & 2 \end{bmatrix} B \begin{bmatrix} 2 & 1 \\ 0 & 1 \\ -4 & 7 \end{bmatrix} = \begin{bmatrix} 12 & 14 \\ 18 & 21 \end{bmatrix}$$

$$4) \begin{matrix} 1) A \\ \bullet \end{matrix} \begin{bmatrix} 5 & 0 & 0 \\ 0 & -3 & 0 \\ 0 & 0 & 2 \end{bmatrix} B \begin{bmatrix} 3 & 0 & 0 \\ 0 & 4 & 0 \\ 0 & 0 & -2 \end{bmatrix}$$

$$(5x3) + (0x0) + (0x0)$$

$$15 + 0 + 0 = 15$$

$$(5x0) + (0x4) + (0x0)$$

$$0 + 0 + 0 = 0$$

$$(5x0) + (0x0) + (0x-2)$$

$$0 + 0 + 0 = 0$$

$$\bullet (0x3) + (-3x0) + (0x0)$$

$$0 + 0 + 0 = 0$$

$$(0x0) + (-3x4) + (0x0)$$

$$0 + -12 + 0 = -12$$

$$(0x0) + (-3x0) + (0x-2)$$

$$0 + 0 + 0 = 0$$

$$\bullet (0x3) + (0x0) + (2x0)$$

$$0 + 0 + 0 = 0$$

$$(0x0) + (0x4) + (2x0)$$

$$0 + 0 + 0 = 0$$

$$(0x0) + (0x0) + (2x-2)$$

$$0 + 0 + -4 = -4$$

$$\begin{bmatrix} 5 & 0 & 0 \\ 0 & -3 & 0 \\ 0 & 0 & 2 \end{bmatrix} B \begin{bmatrix} 3 & 0 & 0 \\ 0 & 4 & 0 \\ 0 & 0 & -2 \end{bmatrix} = \begin{bmatrix} 15 & 0 & 0 \\ 0 & 12 & 0 \\ 0 & 0 & -4 \end{bmatrix}$$

$$3) A \begin{bmatrix} 3 & 0 & -1 \\ 0 & 4 & 2 \\ 5 & -3 & 1 \end{bmatrix} B \begin{bmatrix} 1 & -5 & 0 \\ 4 & 1 & -2 \\ 0 & -1 & 3 \end{bmatrix}$$

$$(3 \times 1) + (0 \times 4) + (-1 \times 0)$$

$$3 + 0 + 0 = 3$$

$$(3 \times -5) + (0 \times 1) + (-1 \times -1)$$

$$-15 + 0 + 1 = -14$$

$$(3 \times 0) + (0 \times -2) + (-1 \times 3)$$

$$0 + 0 - 3 = -3$$

$$\bullet (0 \times 1) + (4 \times 4) + (2 \times 0)$$

$$0 + 16 + 0 = 16$$

$$(0 \times -5) + (4 \times 1) + (2 \times -1)$$

$$0 + 4 - 2 = 2$$

$$(0 \times 0) + (4 \times -2) + (2 \times 3)$$

$$0 - 8 + 6 = -2$$

$$(5 \times 1) + (-3 \times 4) + (1 \times 0)$$

$$5 - 12 + 0 = -7$$

$$5 \times -5 + (-3 \times -1) + (1 \times -1)$$

$$-25 + 3 - 1 = -23$$

$$5 \times 0 + (-3 \times -2) + (1 \times 3)$$

$$0 + 6 + 3 = 9$$

$$\begin{bmatrix} 0 & -1 \\ 4 & 2 \\ 5 & 1 \end{bmatrix} B \begin{bmatrix} 1 & -5 & 0 \\ 4 & 1 & -2 \\ 0 & -1 & 3 \end{bmatrix} = \begin{bmatrix} 3 & 8 & -17 \\ -16 & -6 & -29 \\ -3 & 14 & 9 \end{bmatrix}$$

$$2) A = \begin{bmatrix} 4 & -3 \\ 2 & 1 \end{bmatrix} \quad B = \begin{bmatrix} 2 & 1 \\ 4 & 2 \end{bmatrix}$$

$$(4 \times 2) + (-3 \times 4)$$

$$8 + -12 = -20$$

$$(4 \times -1) + (-3 \times 2)$$

$$4 + -6 = -10$$

$$(-2 \times 2) + (-1 \times 4)$$

$$-4 + 4 = 8$$

$$(-2 \times -1) + (-1 \times 2)$$

$$-2 + 2 = 4$$

$$A = \begin{bmatrix} 4 & -3 \\ 2 & 1 \end{bmatrix} \quad B = \begin{bmatrix} 2 & 1 \\ 4 & 2 \end{bmatrix} = \begin{bmatrix} -20 & -10 \\ 8 & 4 \end{bmatrix}$$

$$1) A = \begin{bmatrix} 3 & 5 \\ 2 & -6 \end{bmatrix} \quad B = \begin{bmatrix} 5 & -2 \\ 1 & 7 \end{bmatrix}$$

$$(3 \times 5) + (5 \times 1) =$$

$$15 + 5 = 20$$

$$(3 \times -2) + (5 \times 7)$$

$$-6 + 35 = 45$$

$$(2 \times 5) + (-6 \times 1)$$

$$10 + -6 = -16$$

$$(2 \times -2) + (-6 \times 7)$$

$$-4 + -42 = -46$$

$$A \begin{bmatrix} 3 & 5 \\ 2 & -6 \end{bmatrix} B \begin{bmatrix} 5 & -2 \\ 1 & 7 \end{bmatrix} = \begin{bmatrix} 20 & 45 \\ -16 & -46 \end{bmatrix}$$