

Q539

11-27 odds

11-27

(11)  $A + B$

$$\begin{bmatrix} 2 & 3 \\ -1 & 5 \end{bmatrix} + \begin{bmatrix} 1 & -3 \\ -2 & -4 \end{bmatrix}$$

$$\begin{bmatrix} 3 & 0 \\ -3 & 1 \end{bmatrix}$$

$A - B$

$$\begin{bmatrix} 2 & 3 \\ -1 & 5 \end{bmatrix} - \begin{bmatrix} 1 & -3 \\ -2 & -4 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 6 \\ 1 & 9 \end{bmatrix}$$

$3A$

$$3 \begin{bmatrix} 2 & 3 \\ -1 & 5 \end{bmatrix}$$

$$\begin{bmatrix} 6 & 9 \\ -3 & 15 \end{bmatrix}$$

$2A + (-3B)$   
 $2A - 3B$

$$\begin{bmatrix} 4 & 6 \\ -2 & 10 \end{bmatrix} + \begin{bmatrix} -3 & 9 \\ 6 & 12 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 15 \\ 4 & 22 \end{bmatrix}$$

(13)  $A + B = \begin{bmatrix} 1 & 1 \\ -2 & 0 \\ -1 & 0 \end{bmatrix}$

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

$$3A = \begin{bmatrix} -9 & 3 \\ 0 & -3 \\ 6 & 3 \end{bmatrix}$$

$2A - 3B$

$$\begin{bmatrix} -6 & 2 \\ 0 & -2 \\ 4 & 2 \end{bmatrix} + \begin{bmatrix} -12 & 0 \\ 6 & -3 \\ 9 & 3 \end{bmatrix} = \begin{bmatrix} -18 & 2 \\ 6 & -5 \\ 13 & 5 \end{bmatrix}$$



$$19) \quad \overset{2 \times 3}{AB} = \begin{bmatrix} 2 & 0 & 1 \\ 1 & 4 & -3 \end{bmatrix} \cdot \overset{3 \times 2}{\begin{bmatrix} -1 & 2 \\ -3 & 1 \\ 0 & -2 \end{bmatrix}} = \overset{2 \times 2}{\begin{bmatrix} 2 & 2 \\ -11 & 12 \end{bmatrix}}$$

$$\begin{array}{r} \begin{array}{r} 2 \cdot 1 = 2 \\ 0 \cdot -3 = 0 \\ 1 \cdot 0 = 0 \\ \hline 2 \end{array} \quad \begin{array}{r} 2 \cdot 2 = 4 \\ 0 \cdot 1 = 0 \\ 1 \cdot -2 = -2 \\ \hline -2 \end{array} \\ \\ \begin{array}{r} 1 \cdot 1 = 1 \\ 4 \cdot -3 = -12 \\ -3 \cdot 0 = 0 \\ \hline -11 \end{array} \quad \begin{array}{r} 1 \cdot 2 = 2 \\ 4 \cdot 1 = 4 \\ -3 \cdot -2 = 6 \\ \hline 12 \end{array} \end{array}$$

$$BA = \overset{3 \times 2}{\begin{bmatrix} 1 & 2 \\ -3 & 1 \\ 0 & -2 \end{bmatrix}} \cdot \overset{2 \times 3}{\begin{bmatrix} 2 & 0 & 1 \\ 1 & 4 & -3 \end{bmatrix}} = \overset{3 \times 3}{\begin{bmatrix} 4 & 8 & -5 \\ -5 & 4 & -6 \\ -2 & -8 & 6 \end{bmatrix}}$$

$$\begin{array}{r} \begin{array}{r} 1 \cdot 2 = 2 \\ 2 \cdot 1 = 2 \\ \hline 4 \end{array} \quad \begin{array}{r} 1 \cdot 0 = 0 \\ 2 \cdot 4 = 8 \\ \hline 8 \end{array} \quad \begin{array}{r} 1 \cdot 1 = 1 \\ 2 \cdot -3 = -4 \\ \hline -5 \end{array} \\ \\ \begin{array}{r} -3 \cdot 2 = -6 \\ 1 \cdot 1 = 1 \\ \hline -5 \end{array} \quad \begin{array}{r} -3 \cdot 0 = 0 \\ 1 \cdot 4 = 4 \\ \hline 4 \end{array} \quad \begin{array}{r} -3 \cdot 1 = -3 \\ 1 \cdot -3 = -3 \\ \hline -6 \end{array} \\ \\ \begin{array}{r} 0 \cdot 2 = 0 \\ -2 \cdot 1 = -2 \\ \hline -2 \end{array} \quad \begin{array}{r} 0 \cdot 0 = 0 \\ -2 \cdot 4 = -8 \\ \hline -8 \end{array} \quad \begin{array}{r} 0 \cdot 1 = 0 \\ -2 \cdot -3 = 6 \\ \hline 6 \end{array} \end{array}$$

$$21) A \cdot B = \begin{bmatrix} 6 & -7 & -2 \\ 3 & 7 & 3 \\ 8 & -1 & -1 \end{bmatrix}$$

$$\begin{bmatrix} -208 & -10 & -6 & 0 & 0 & -2 \\ 8, -1, 4 & 4 & 0 & 3 & 0 & 2 & 1 \\ 4 & 0 & 4 & 2 & 0 & -3 & 0 & 0 & -1 \end{bmatrix}$$

$$BA = \begin{bmatrix} 2 & 1 & 3 \\ 5 & 0 & 0 \\ -18 & -3 & 10 \end{bmatrix}$$

$$\begin{bmatrix} -2 & -4 & 8 & 0 & 1 & 0 & 4 & -10 \\ 1 & 0 & 4 & 0 & 0 & 0 & -2 & 0 & 2 \\ -4 & -12 & -2 & 0 & -3 & 0 & 8 & 3 & -1 \end{bmatrix}$$

$$23) AB = \begin{bmatrix} -8 \end{bmatrix} \quad \begin{bmatrix} -10 & -4 & 6 \end{bmatrix}$$

$$BA = \begin{bmatrix} -10 & 5 & -15 \\ 8 & -4 & 12 \\ 4 & -2 & 6 \end{bmatrix}$$

25) AB not possible  
 $2 \times 2 \quad 1 \times 2$

$$BA = \begin{bmatrix} 18 & 14 \end{bmatrix} \quad \begin{bmatrix} 3 & 15 & -6 & 20 \end{bmatrix}$$

$$27) AB = \begin{bmatrix} -1 & 3 & 4 \\ 2 & 0 & 1 \\ 1 & 2 & 1 \end{bmatrix}$$

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

$$\begin{bmatrix} 0 & 0 & -1 & 0 & 0, 3 & 0 & 0 & 4 \\ 0 & 2 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 2 & 0 & 0 & 1 & 0 & 0 \end{bmatrix}$$

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