$$\begin{bmatrix}
10 & 5 & 15 \\
-5 & 10 & 20
\end{bmatrix} - \begin{bmatrix}
-6 & 3 & 12 \\
15 & 0 & 21
\end{bmatrix}$$

$$\begin{bmatrix}
-30 & 5 & 25
\end{bmatrix} - \begin{bmatrix}
6 & -3 & 9
\end{bmatrix}$$

$$\begin{bmatrix}
10 - (-6) & S - 3 & 15 - 12 \\
-S - 15 & 10 - 0 & 20 - 21 \\
-30 - 6 & S - (-3) & 25 - 9
\end{bmatrix}
\rightarrow
\begin{bmatrix}
16 & 2 & 3 \\
-20 & 10 & -1 \\
-36 & 8 & 16
\end{bmatrix}$$

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

$$10 + 6 = 16$$

$$\begin{bmatrix} 16 \\ 16 \end{bmatrix}$$

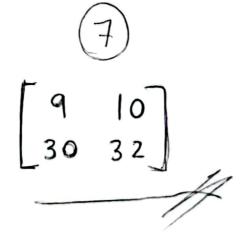
$$-2 + 21 = 19$$

 $-5 + 8 = 3$
 $1 + 28 = 29$

$$0+9-35=-26$$
 $0+0-92=-92$
 $-2+3+15=16$
 $-1+0+18=17$
 $9+6+25=35$
 $2+0+30=32$
 $0+18-28=-10$
 $1+6+12=19$

7+0-3-5+10=9

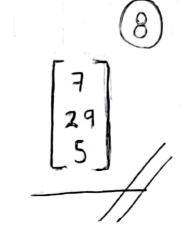
-2 +12 +20 = 30



$$\begin{bmatrix}
3 & -1 & 2 \\
3 & 5 & 6 \\
2 & 4 & -1
\end{bmatrix}
\begin{bmatrix}
2 \\
1 \\
3
\end{bmatrix}$$

$$2-1+6=7$$

 $6+5+18=29$
 $4+4-3=5$



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

$$A = \begin{bmatrix} 3 & 0 \\ -1 & 2 \\ 1 & 1 \end{bmatrix} \quad B = \begin{bmatrix} 4 & -1 \\ 0 & 2 \end{bmatrix} \quad C = \begin{bmatrix} 1 & 4 & 2 \\ 3 & 9 & 5 \end{bmatrix}$$

$$D = \begin{bmatrix} 1 & 5 & 2 \\ -1 & 0 & 1 \\ 3 & 2 & 4 \end{bmatrix}$$

$$D = \begin{bmatrix} 1 & 5 & 2 \\ -1 & 0 & 1 \\ 3 & 2 & 4 \end{bmatrix} \qquad E = \begin{bmatrix} 6 & 1 & 3 \\ -1 & 1 & 2 \\ 4 & 1 & 3 \end{bmatrix}$$

$$\begin{bmatrix} 3 & 0 \\ -1 & 2 \\ 1 & 1 \end{bmatrix} \begin{bmatrix} 9 & -1 \\ 0 & 2 \end{bmatrix}$$

$$12+0=12$$
 $9+0=9$
 $-3+0=-3$ $-1+2=1$
 $-9+0=-9$
 $1+9=5$

$$\begin{bmatrix} 1 & 5 & 2 \\ -1 & 0 & 1 \\ 3 & 2 & 4 \end{bmatrix} + \begin{bmatrix} 6 & 1 & 3 \\ -1 & 1 & 2 \\ 4 & 1 & 3 \end{bmatrix} \rightarrow \begin{bmatrix} 1+6 & 5+1 & 3+2 \\ -1-1 & 0+1 & 1+2 \\ 3+4 & 2+1 & 4+3 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 5 & 2 \\ -1 & 0 & 1 \\ 3 & 2 & 4 \end{bmatrix} - \begin{bmatrix} 6 & 1 & 3 \\ -1 & 1 & 2 \\ 4 & 1 & 3 \end{bmatrix} \rightarrow \begin{bmatrix} 1-6 & 5-1 & 2-3 \\ -1-(-1) & 0-1 & 1-2 \\ 3-4 & 2-1 & 4-3 \end{bmatrix}$$

$$\begin{bmatrix} -5 & 4 & -1 \\ 0 & -1 & -1 \\ -1 & 1 & 1 \end{bmatrix}$$

(12) DE

$$\begin{bmatrix} 1 & 5 & 2 \\ -1 & 0 & 1 \\ 3 & 2 & 4 \end{bmatrix} \begin{bmatrix} 6 & 1 & 3 \\ -1 & 1 & 2 \\ 4 & 1 & 3 \end{bmatrix}$$

$$\begin{bmatrix} 6 & 1 & 3 \\ -1 & 1 & 2 \\ 4 & 1 & 3 \end{bmatrix} \begin{bmatrix} 1 & 5 & 2 \\ -1 & 0 & 1 \\ 3 & 2 & 4 \end{bmatrix}$$

$$\begin{vmatrix}
9 & 1 & 3 \\
6 - 1 + 9 = 14 & -5 + 0 + 4 = -1 \\
30 + 0 + 6 = 36 & -2 + 1 + 8 = 7 \\
12 + 1 + 12 = 25 & 4 - 1 + 9 = 12 \\
-1 - 1 + 6 = 4$$

$$\begin{vmatrix}
9 & 1 & 3 & 4 & 4 & 4 \\
-2 & 1 & 1 & 1 & 1 & 4 \\
-1 & 1 & 1 & 2 & 4 & 4 & 4 \\
-1 & 1 & 1 & 2 & 4 & 4 & 4 & 4
\end{vmatrix}$$

$$\begin{vmatrix}
14 & 36 & 25 \\
4 & -1 & 7 \\
12 & 26 & 21
\end{vmatrix}$$

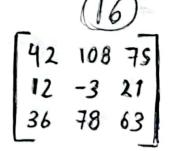
$$3\begin{bmatrix} 1 & 4 & 2 \\ 3 & 1 & 5 \end{bmatrix} - \begin{bmatrix} 1 & 5 & 2 \\ -1 & 0 & 1 \\ 3 & 2 & 4 \end{bmatrix}$$

$$\begin{bmatrix}
3(1) & 3(4) & 3(2) \\
3(3) & 3(1) & 3(5)
\end{bmatrix} - \begin{bmatrix}
1 & 5 & 2 \\
-1 & 0 & 1 \\
3 & 2 & 4
\end{bmatrix} \rightarrow \begin{bmatrix}
3 & 12 & 6 \\
9 & 3 & 15
\end{bmatrix}$$

$$\begin{bmatrix} 18 & 3 & 9 \\ -3 & 3 & 6 \\ 12 & 3 & 9 \end{bmatrix} \begin{bmatrix} 1 & 5 & 2 \\ -1 & 0 & 1 \\ 3 & 2 & 4 \end{bmatrix} \begin{bmatrix} 12-3+21=36 \\ 60+0+18=78 \\ 24+3+36=63 \end{bmatrix}$$

$$18 - 3 + 27 = 42 - 3 - 3 + 18 = 12$$

 $90 + 0 + 18 = 108 - 15 + 0 + 12 = -3$
 $36 + 3 + 36 = 75 - 6 + 3 + 24 = 21$



$$\begin{array}{c}
(\overline{7}) (AB)C \\
A = \begin{pmatrix} 3 & 0 \\ -1 & 2 \\ 1 & 1 \end{pmatrix} \begin{pmatrix} 4 & -1 \\ 0 & 2 \end{pmatrix} \begin{pmatrix} 1 & 4 & 2 \\ 3 & 1 & 5 \end{pmatrix} \\
12 + 0 = 12 \\
-3 + 0 = -3 \\
-4 + 0 = -4 \\
1 + 4 = 5
\end{array}$$

$$\begin{bmatrix}
 12 & -3 \\
 -4 & 5 \\
 4 & 1
 \end{bmatrix}
 \begin{bmatrix}
 1 & 4 & 2 \\
 \hline
 3 & 1 & 5
 \end{bmatrix}$$

4 +0 = 4

-1+2=1

$$\begin{bmatrix} 3 & 0 \\ -1 & 2 \\ 1 & 1 \end{bmatrix} \begin{pmatrix} \begin{bmatrix} 4 & -1 \\ 0 & 2 \end{bmatrix} \begin{bmatrix} 1 & 4 & 2 \\ 3 & 1 & 5 \end{bmatrix} \end{pmatrix}$$

1 +6=7

$$9-3=1$$

 $16-1=15$
 $8-5=3$
 $0+6=6$

$$\begin{bmatrix} 3 & 0 \\ -1 & 2 \\ 1 & 1 \end{bmatrix} \begin{bmatrix} 1 & 15 & 3 \\ 6 & 2 & 10 \end{bmatrix}$$

$$0 = 3 \quad 15 + 1 = 12$$

$$3+0=3$$

 $4)+0=45$
 $9+0=9$
 $-1+12=11$
 $-15+4=-11$
 $-3+20=17$

$$\begin{bmatrix}
2 & 6 & 6 \\
2 & 7 & 6 \\
2 & 7 & 7
\end{bmatrix}
\longrightarrow
\begin{bmatrix}
2 & 6 & 6 & | 1 & 0 & 0 \\
2 & 7 & 7 & | 0 & 0 & 1
\end{bmatrix}$$

$$\underbrace{e_{1} - e_{1} \Rightarrow e_{2}}_{e_{3}} = \underbrace{e_{1} \Rightarrow e_{3}}_{e_{3}} = \underbrace{e_{1} \Rightarrow e_{3}}_{e_{1} \Rightarrow e_{3}} = \underbrace{e_{3} \cdot e_{1}}_{e_{3} \Rightarrow e_{1}} = \underbrace{e_{3} \cdot e_{1}}_{e_{3} \Rightarrow e_{1}} = \underbrace{e_{3} \cdot e_{1}}_{e_{1} \Rightarrow e_{3}} = \underbrace{e_{3} \cdot e_{1}}_{e_{3} \Rightarrow e_{1}} = \underbrace{e_{3} \cdot e_{1}}_{e_{3} \Rightarrow e_{1}}_{e_{3} \Rightarrow e_{1}}} = \underbrace{e_{3} \cdot e_{1}}_{e_{3} \Rightarrow e_{1}}_{e_{3} \Rightarrow e_{1}} = \underbrace{e_{3} \cdot e_{1}}_{e_{3} \Rightarrow e_{1$$

$$\begin{bmatrix}
\frac{1}{5} & \frac$$

$$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 1 & 2 & 0 & 0 \\ 1 & 2 & 4 & 0 \\ 1 & 2 & 4 & 8 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 & 0 & 1 & 0 & 0 \\ 1 & 2 & 4 & 0 & 0 & 0 & 1 \\ 1 & 2 & 4 & 8 & 0 & 0 & 0 & 1$$

