01.

$$A = \begin{pmatrix} P & 2 & 2 \\ P & 4 & 4 \\ P & 4 & 1 \end{pmatrix} = -18$$

P 2 2 P 2
P 4 4 P 4 = -18
P 4 1 P 4

$4P + 8P + 8P - (8P + 16P + 2P) = -18$
$20P - (26P) = -18$
$-6P = -18$
$P = -\left(\frac{-18}{6}\right)$
$P = 3.$

$$B = \begin{pmatrix} P & -1 & 2 \\ P & -2 & 4 \\ P & -2 & 1 \end{pmatrix} \begin{pmatrix} 3 & -1 & 2 \\ 3 & -2 & 4 \\ 3 & -2 & 1 \end{pmatrix}$$

3 -1 2 3 -1 → $-6 - 12 - 12 - (-12 - 24 - 3)$
3 -2 4 3 -2 → $-30 - (-39)$
3 -2 1 3 -2 → 9

(A)

02.

$(2A) = ORDem^2 \cdot DetA$
$X - 97 = 4^2 \cdot -6$
$X - 97 = -96$
$X = 97 - 96$
$X = 1.$

(C)

03.

$Det\,B = K \cdot Det\,A$
↳ $Det\,B = (1/x) \cdot y \cdot Det\,A$
$Det\,B = (x/y) \cdot Det\,A$
$Det\,B = Det\,A\,/\,(x/y)$

(C)

04.

$$A = \begin{pmatrix} 2 & 1 & 0 \\ K & K & K \\ 1 & 2 & -2 \end{pmatrix} = 10$$

2 1 0 2 1
K K K K K = 10 → $4K + 1K + 0 - (0 - 4K - 2K) = 10$
1 2 -2 1 2 → $-4K + 1K - 4K + 2K = 10$
$-8K + 3K = 10$
$-5K = 10$
$K = -\frac{10}{5}$
$K = -2$

$$B = \begin{pmatrix} 2 & 1 & 0 \\ K+4 & K+3 & K-1 \\ 1 & 2 & -2 \end{pmatrix}$$

$$\begin{pmatrix} 2 & 1 & 0 \\ -2+4 & -2+3 & -2-1 \\ 1 & 2 & -2 \end{pmatrix} \rightarrow \begin{pmatrix} 2 & 1 & 0 \\ 2 & 1 & -3 \\ 1 & 2 & -2 \end{pmatrix} \begin{matrix} 2 & 1 \\ 2 & 1 \\ 1 & 2 \end{matrix}$$

$-4 - 3 + 0 - (0 - 12 - 4)$
$-7 - (-16)$
9

(C)

05.

$$A = \left(\begin{pmatrix} 1 \\ -2 \\ -3 \end{pmatrix} \begin{matrix} -11 \\ 4 \\ -7 \end{matrix} \begin{pmatrix} 6 \\ -3 \\ x \end{pmatrix}\right)$$

$$\begin{pmatrix} 6 \\ -3 \\ 2 \end{pmatrix} + \begin{pmatrix} 1 \\ -2 \\ -3 \end{pmatrix} = \begin{pmatrix} -12 \\ 6 \\ -4 \end{pmatrix} + \begin{pmatrix} 1 \\ -2 \\ -3 \end{pmatrix} = \begin{matrix} -11 \\ 4 \\ -7 \end{matrix}$$

(D)

06.

$$A = \begin{pmatrix} 1 & x & x^2 \\ 1 & 2 & 4 \\ 1 & -3 & 9 \end{pmatrix} = 0$$

$$\begin{matrix} 1 & x & x^2 & 1 & x \\ 1 & 2 & 4 & 1 & 2 \\ 1 & -3 & 9 & 1 & -3 \end{matrix} \quad = 0 \quad \rightarrow \quad \begin{matrix} 18 + 4x - 3x^2 - (2x^2 - 12 + 9x) \\ 18 + 4x - 3x^2 - 2x^2 + 12 - 9x \\ -5x^2 - 5x + 30 \end{matrix}$$

$$\Delta = (-5)^2 - 4 \cdot (-5) \cdot 30$$

$$\Delta = 25 + 600$$

$$\Delta = \sqrt{625}$$

$$\Delta = 25$$

$$\rightarrow \frac{-(-5) \pm 25}{-10} \begin{cases} \rightarrow x_1 = -3 \\ \rightarrow x_2 = 2 \end{cases} = \{-3, 2\}$$

07.

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

$$D\tau = A_{11} \cdot A_{22} \cdot A_{33} \cdot A_{44} \cdot A_{55}$$

$$D\tau = 1 \cdot 2 \cdot 1 \cdot -2 \cdot 3$$

$$D\tau = -12$$

(D)