



$$\rightarrow \text{adj}(A) = \begin{pmatrix} -57 & 51 & -3 \\ 33 & -30 & 6 \\ -3 & 6 & 3 \end{pmatrix}$$

2.14

$$\begin{aligned} d) \quad & 7x_1 + 2x_2 + 3x_3 = 1 \\ & 5x_1 - 3x_2 + 2x_3 = 5 \\ & 5x_1 - 8x_2 + 3x_3 = 11 \end{aligned}$$

$$A = \begin{pmatrix} 7 & 2 & 3 \\ 5 & -3 & 2 \\ 5 & -8 & 3 \end{pmatrix} \quad X = \begin{pmatrix} x_1 \\ x_2 \\ x_3 \end{pmatrix} \quad B = \begin{pmatrix} 1 \\ 5 \\ 11 \end{pmatrix}$$

$$\Delta = \begin{vmatrix} 7 & 2 & 3 \\ 5 & -3 & 2 \\ 5 & -8 & 3 \end{vmatrix} = -93 + 20 - 120 + 45 + 112 - 30 = -36$$

$$\Delta_1 = \begin{vmatrix} 1 & 2 & 3 \\ 5 & -3 & 2 \\ 11 & -8 & 3 \end{vmatrix} = -9 + 44 - 120 + 99 + 16 - 30 = 0$$

$$\begin{aligned} \Delta_2 &= \begin{vmatrix} 7 & 1 & 3 \\ 5 & 5 & 2 \\ 5 & 11 & 3 \end{vmatrix} = 105 + 10 + 165 - 75 - 154 - 15 \\ &= 36 \end{aligned}$$

$$\Delta_3 = \begin{vmatrix} 7 & 2 & 1 \\ 5 & -3 & 5 \\ 5 & -8 & 11 \end{vmatrix} = -231 + 50 - 40 + 15 + 990 - 110 = -2$$

$\Delta \neq 0$ nên pt có 1 nghiệm duy nhất
 $\begin{cases} x_1 = \Delta_1 / \Delta = 0 \\ x_2 = \Delta_2 / \Delta = +36 / -36 = -1 \\ x_3 = \Delta_3 / \Delta = -2 / -36 = 1/18 \end{cases}$



Aspire 7



$$\begin{aligned} \det(A) &= 1 \cdot (-1)^{3+1} \begin{vmatrix} -1 & 4 \\ -3 & -2 \end{vmatrix} + 2 \cdot (-1)^{3+2} \begin{vmatrix} -2 & 4 \\ 6 & -2 \end{vmatrix} \\ &\quad + 3 \cdot (-1)^{3+3} \begin{vmatrix} -2 & -1 \\ 6 & -3 \end{vmatrix} \\ &= 1 \cdot 11 + 2 \cdot 20 + 3 \cdot 12 = \\ \det(A) &= (-2)(-3)(2) + (-1)(-2)(4) + 4 \cdot 6 \cdot 1 - 4(-3)4 \\ &\quad - 4(-2)(-2) - 2 \cdot 6(-1) = 100. \end{aligned}$$

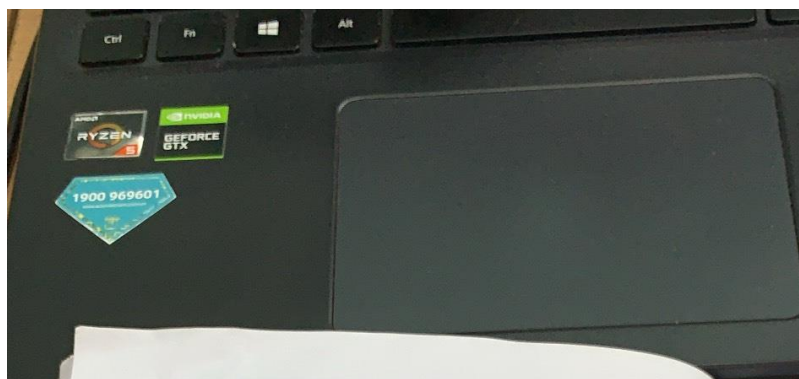
$$\begin{aligned} d) \begin{vmatrix} 7 & 6 & 5 \\ 1 & 2 & 1 \\ 3 & -2 & 1 \end{vmatrix} \quad \det(A) &= 7 \cdot 2 \cdot 1 + 6 \cdot 1 \cdot 3 + 5 \cdot (+1)(-2) \\ &\quad - 5 \cdot 2 \cdot 3 - 7(+1)(-2) - 6 \cdot 1 \cdot 1 = 0. \end{aligned}$$

2.3

$$a) \begin{vmatrix} d & e & f \\ g & h & i \\ a & b & c \end{vmatrix} \xrightarrow[\substack{d_1 \leftrightarrow d_3 \\ d_2 \leftrightarrow d_3}]{\substack{d_1 \leftrightarrow d_3 \\ d_2 \leftrightarrow d_3}} \begin{vmatrix} a & b & c \\ d & e & f \\ g & h & i \end{vmatrix} = \alpha.$$

$$b) \begin{vmatrix} a+g & b+h & c+i \\ d & e & f \\ g & h & i \end{vmatrix} \xrightarrow{d_1 - d_3} \begin{vmatrix} a & b & c \\ d & e & f \\ g & h & i \end{vmatrix} = \alpha$$

$$c) \begin{vmatrix} 3a & -b & 2c \\ 3d & -e & 2f \\ 3g & -h & 2i \end{vmatrix} \xrightarrow[\substack{c_1/3 \\ c_2(-1) \\ c_3/2}]{\substack{c_1/3 \\ c_2(-1) \\ c_3/2}} \begin{vmatrix} a & b & c \\ d & e & f \\ g & h & i \end{vmatrix} = \alpha \cdot (-1) \cdot 2 = -2\alpha$$



$$d) \begin{vmatrix} 2c & b & a \\ af & e & d \\ 2i & h & g \end{vmatrix} \xrightarrow{\frac{a-c}{c}, \frac{e-d}{d}, \frac{g-h}{h}} \begin{vmatrix} a & b & c \\ d & e & f \\ g & h & i \end{vmatrix} = \alpha$$

$$e) \begin{vmatrix} i & h & g \\ f & e & d \\ c & b & a \end{vmatrix} \xrightarrow{\frac{d-c}{c}, \frac{e-d}{d}, \frac{g-h}{h}} \begin{vmatrix} a & b & c \\ d & e & f \\ g & h & i \end{vmatrix} = \alpha$$

$$f) \begin{vmatrix} a & b & c \\ 2d-bg & 2e-hf & 2f-gi \\ g & h & i \end{vmatrix} \xrightarrow{\frac{d_2+2d_3}{d_3/2}} \begin{vmatrix} a & b & c \\ d & e & f \\ g & h & i \end{vmatrix} = \alpha$$

$$0 \quad 2.4$$

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

$$= 3 \begin{vmatrix} 3 & 1 & +(-1)3 & 1 & +(-4)3 & 3 & +13 & 1 & +1-2 & 1 \\ 1 & -1 & 3 & -9 & 3 & 1 & 1 & -1 & 3 & -1 \end{vmatrix}$$

$$+ 4 \begin{vmatrix} -2 & 3 & +(-1)3 & 1 & +(-3) & -2 & 1 & +(-4) & -2 & 3 & +1 & 3 & 3 \end{vmatrix}$$

$$+ 3 \begin{vmatrix} 3 & -2 & 3 & +(-1) & -2 & 3 & = 14 \end{vmatrix}$$

$$3 \quad 1 \quad 1 \quad 3 \quad 3$$

BÚT CẦU



Aspire 7



Ethernet

USB

FireWire

Thunderbolt

$$\begin{aligned} b) \begin{vmatrix} 1 & 3 & 2 & 4 \\ -2 & 2 & 4 & 1 \\ 2 & 2 & 5 & 4 \\ -3 & -1 & 3 & -2 \end{vmatrix} &= \det(A) = 2 \begin{vmatrix} 5 & 4 \\ 3 & 2 \end{vmatrix} + (-4) \begin{vmatrix} 2 & 4 \\ -1 & 2 \end{vmatrix} \\ &+ 1 \begin{vmatrix} 2 & 5 \\ -1 & 3 \end{vmatrix} + 6 \begin{vmatrix} 5 & 4 \\ 3 & 2 \end{vmatrix} + 12 \begin{vmatrix} 2 & 4 \\ -3 & 2 \end{vmatrix} \\ &+ (-3) \begin{vmatrix} 2 & 5 \\ -3 & 3 \end{vmatrix} + (-4) \begin{vmatrix} 2 & 4 \\ -1 & 2 \end{vmatrix} + (-4) \begin{vmatrix} 2 & 4 \\ -3 & 2 \end{vmatrix} + 2 \begin{vmatrix} 2 & 2 \\ -3 & -1 \end{vmatrix} \\ &+ 8 \begin{vmatrix} 2 & 5 \\ -1 & 3 \end{vmatrix} + 8 \begin{vmatrix} 2 & 5 \\ -3 & 3 \end{vmatrix} - 16 \begin{vmatrix} 2 & 2 \\ -3 & -1 \end{vmatrix} = 196 \end{aligned}$$

2.7.

$$b) \begin{vmatrix} 1 & x^2 & x \\ x & 1 & x^2 \\ x^2 & x & 1 \end{vmatrix}$$

$$\text{để } \det(A) = 0$$

$$\Rightarrow 1 \cdot 1 \cdot 1 + x^3 + x^6 - x^3 - x^3 - x^2 = 0$$

$$\Rightarrow x^3 + 1 = 0$$

$$\Rightarrow (x+1)(x^2-x+1) = 0$$

$$\Rightarrow x = -1$$

$$2) \begin{vmatrix} x+3 & 0 & 1 \\ 5 & x-3 & 2 \\ 6 & -6 & x+4 \end{vmatrix} = 0$$

$$\det(A) = 0$$

$$\rightarrow (x^2 - 9)(x+4) + 1 \cdot (5)6 + 0 \cdot 6 \cdot 2 - 1(x-3) \cdot 6 = 0$$

$$- (x+3)(-6) \cdot 2 - 0 \cdot 5(x+4) = 0$$

$$\rightarrow x^3 + 4x^2 - 9x + 36 - 6x + 18 - 30 + 12x + 36 = 0$$

$$x^3 + 4x^2 - 3x + 60 = 0$$

$$x = -4$$

$$x = \sqrt{3}$$

$$x = -3$$

2.9b)

$$C_{11} = (-1)^{2+1} \begin{vmatrix} 6 & 7 \\ 9 & 1 \end{vmatrix} = -51$$

$$C_{12} = (-1)^{2+2} \begin{vmatrix} 5 & 7 \\ 8 & 1 \end{vmatrix} = 51$$

$$C_{13} = (-1)^{2+3} \begin{vmatrix} 5 & 6 \\ 8 & 9 \end{vmatrix} = -3$$

$$C_{21} = (-1)^{1+1} \begin{vmatrix} 3 & 4 \\ 9 & 1 \end{vmatrix} = 33$$

$$C_{22} = (-1)^{1+2} \begin{vmatrix} 2 & 4 \\ 8 & 1 \end{vmatrix} = -30$$

$$C_{23} = (-1)^{1+3} \begin{vmatrix} 2 & 3 \\ 8 & 9 \end{vmatrix} = 6$$

$$C_{31} = (-1)^{3+1} \begin{vmatrix} 3 & 4 \\ 6 & 7 \end{vmatrix} = -9$$

$$C_{32} = (-1)^{3+2} \begin{vmatrix} 2 & 4 \\ 3 & 7 \end{vmatrix} = 6$$

$$C_{33} = (-1)^{3+3} \begin{vmatrix} 2 & 3 \\ 5 & 6 \end{vmatrix} = -9$$



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