

Soluții

1. a) $\Delta = \begin{vmatrix} 1 & 3 & 2 \\ 1 & -2 & a \\ 1 & 1 & 4 \end{vmatrix} = 2(a-7).$

b) $\Delta_x = -16, \Delta_y = 12, \Delta_z = -4; x = \frac{15}{4}, y = -\frac{3}{4}, z = \frac{1}{4}.$

c) Din ultima ecuație $\Rightarrow z_0 = 0 \Rightarrow x_0 + y_0 = 4, x_0 - 2y_0 = 5 \Rightarrow y_0 = -\frac{1}{3}, x_0 = \frac{13}{3}; b = \frac{10}{3}.$

2. a) $f(0) = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}, f(1) = \begin{pmatrix} 1 & 1 & 4 \\ 0 & 1 & 4 \\ 0 & 0 & 1 \end{pmatrix}; f(0) + f(1) = \begin{pmatrix} 2 & 1 & 4 \\ 0 & 2 & 4 \\ 0 & 0 & 2 \end{pmatrix}.$

b) $f(1) \cdot f(-1) = f(1-1) = f(0) = I_3.$

c) $f(x+y) = \begin{pmatrix} 1 & x+y & 2(x+y)^2 + 2(x+y) \\ 0 & 1 & x+y \\ 0 & 0 & 1 \end{pmatrix}; f(x)f(y) = \begin{pmatrix} 1 & x+y & 2(x+y)^2 + 2(x+y) \\ 0 & 1 & x+y \\ 0 & 0 & 1 \end{pmatrix}.$