Linear Algebra

Bài 1.

a/ $A = \begin{pmatrix} x-2 & -1 \\ -3 & x \end{pmatrix}$ $\det(A) = (x-2)(x) - 3 = x^2 - 2x - 3$

b/ $A = \begin{pmatrix} 2 & 0 & 0 \\ 4 & 6 & 0 \\ -3 & 7 & 2 \end{pmatrix}$ ~~$\det(A) = 2(6.2)$~~

→ Ma trận tam giác → $\det A = 2.6.2 = 24$

c/ $\begin{pmatrix} -3 & 2 & 1 \\ 4 & 5 & 6 \\ 2 & -3 & 1 \end{pmatrix}$ $\det A = -3(5+18) - 2(4-12) + (-12)$

$= -3.23 - 2.(-8) + 22$

$= -69 + 16 + 22$

$= -75$

d/ $\begin{pmatrix} 2 & -1 & 1 \\ 0 & 2 & 1 \\ 0 & 0 & 4 \end{pmatrix}$ $\det A = 2.2.4. = 16$

e/ $\begin{pmatrix} x & y & 1 \\ -1 & -2 & 1 \\ 1 & 5 & 1 \end{pmatrix}$ $\det A = x(-2-5) - y(-1-1) + 1(-5+2)$

$= -7x + 2y + (-3)$

f/ $\begin{pmatrix} m & -1 & 0 \\ 1 & 2 & 1 \\ 2 & m & -3 \end{pmatrix}$ $\det A = m(-6-m) + 1(-3-2) + 0$

$= -6m - m^2 - 5$