https://www.linkedin.com/feed/update/urn:li:activity:6528832096750964736

If $a^2+b^2+c^2=-2$ and

$$f(x)=\det\begin{pmatrix} 1+a^2x & (1+b^2)x & (1+c^2)x \\ (1+a^2)x & 1+b^2x & (1+c^2)x \\ (1+a^2)x & (1+b^2)x & 1+c^2x \end{pmatrix},$$ then $f(x)$ is a polynomial

of degree

(a) 2; (b) 3; (c) 0; (d) 1

**Solution by Arkady Alt** , **San Jose** ,**California**, **USA**.

$$\det\begin{pmatrix} 1+a^2x & (1+b^2)x & (1+c^2)x \\ (1+a^2)x & 1+b^2x & (1+c^2)x \\ (1+a^2)x & (1+b^2)x & 1+c^2x \end{pmatrix}=$$

$$\det\begin{pmatrix} 1+a^2x & (1+b^2)x & 1+a^2x+(1+b^2)x+(1+c^2)x \\ (1+a^2)x & 1+b^2x & (1+a^2)x+1+b^2x+(1+c^2)x \\ (1+a^2)x & (1+b^2)x & (1+a^2)x+(1+b^2)x+1+c^2x \end{pmatrix}=$$

$$\det\begin{pmatrix} 1+a^2x & (1+b^2)x & x(a^2+b^2+c^2+2)+1 \\ (1+a^2)x & 1+b^2x & x(a^2+b^2+c^2+2)+1 \\ (1+a^2)x & (1+b^2)x & x(a^2+b^2+c^2+2)+1 \end{pmatrix}=$$

$$\det\begin{pmatrix} 1+a^2x & (1+b^2)x & 1 \\ (1+a^2)x-(1+a^2x) & 1+b^2x-(1+b^2)x & 1-1 \\ (1+a^2)x-(1+a^2x) & (1+b^2)x-(1+b^2)x & 1-1 \end{pmatrix}=$$

$$\det\begin{pmatrix} 1+a^2x & (1+b^2)x & 1 \\ x-1 & -(x-1) & 0 \\ x-1 & 0 & 0 \end{pmatrix}=(x-1)^2$$