

Financial Mathematics

Properties of determinants

0028-1. Compute

$$\det \begin{bmatrix} 6 & 2 & -3 \\ 4 & 5 & -9 \\ -7 & 1 & -9 \end{bmatrix}.$$

0028-2. Compute

$$\det \begin{bmatrix} 2 & 4 & -8 \\ 4 & 5 & -9 \\ -7 & 1 & -9 \end{bmatrix}.$$

0028-3. Compute

$$\det \begin{bmatrix} 6 + 2 & 2 + 4 & -3 - 8 \\ 4 & 5 & -9 \\ -7 & 1 & -9 \end{bmatrix}.$$

0028-4. Compute

“upper
triangular
unipotent”

$$\det \begin{bmatrix} 6 & 9 & 5 & 4 & 1 \\ 0 & -2 & 5 & 9 & -1 \\ 0 & 0 & 1 & -2 & -7 \\ 0 & 0 & 0 & -2 & 8 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix} .$$

0028-5. Suppose x , y and z solve the system

$$2x - 7y - 3z = 7$$

$$7x + 3y + 6z = 3$$

$$9x + 5y - 2z = 2$$

Using Cramer's rule, express y as a quotient of determinants.

(No need to compute y .)