

Handwritten HW 14

Page 178

38. Let $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$ and let k be a scalar. Find a formula that relates $\det kA$ to k and $\det A$.

Solution:

44. Let $\mathbf{u} = \begin{bmatrix} a \\ b \end{bmatrix}$ and $\mathbf{v} = \begin{bmatrix} c \\ 0 \end{bmatrix}$, where a , b , and c are positive (for simplicity). Compute the area of the parallelogram determined by \mathbf{u} , \mathbf{v} , $\mathbf{u} + \mathbf{v}$, and $\mathbf{0}$, and compute the determinants of the matrices $[\mathbf{u} \ \mathbf{v}]$ and $[\mathbf{v} \ \mathbf{u}]$. Draw a picture and explain what you find.

Solution: