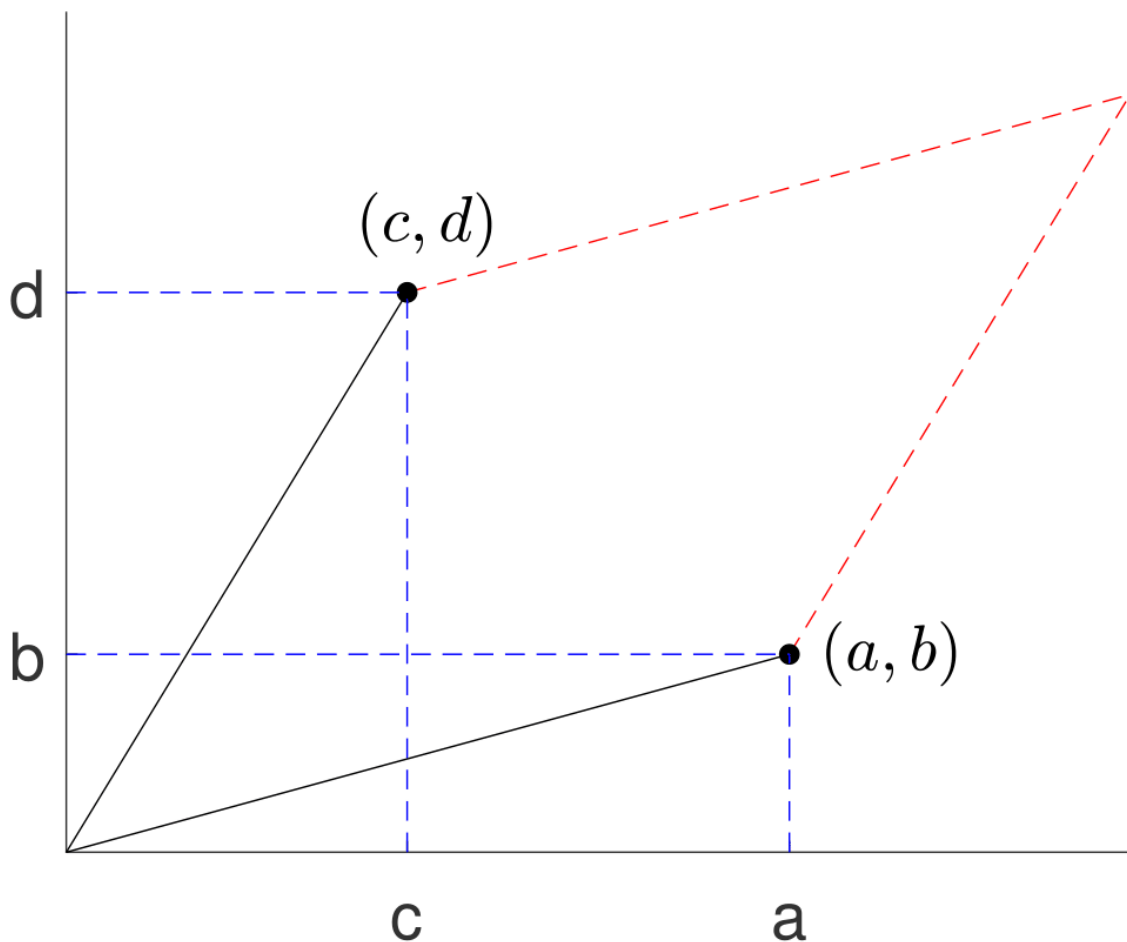# Determinant as an Area

Consider the parallelogram constructed by the two lines drawn from the origin to the points (a, b) and (c, d), as drawn in the figure.

Show that the area of the parallelogram is given by the absolute value of the determinant

$$\text{Area} = \left| \det \begin{pmatrix} a & b \\ c & d \end{pmatrix} \right|.$$