1 | Determinant def

Represents the ”size” of a matrix (area of parallelogram).

For larger (eg. 3x3) matrices, can wrap rows instead of flipping signs (because swapping columns in 2x2 determinant equals flipping sign).

$$\begin{aligned}\begin{vmatrix} a & b & c \\ d & e & f \\ g & h & j \end{vmatrix} &= a\begin{vmatrix} e & f \\ h & j \end{vmatrix} + b\begin{vmatrix} f & d \\ j & g \end{vmatrix} + c\begin{vmatrix} d & e \\ g & h \end{vmatrix} \\ &= a\begin{vmatrix} e & f \\ h & j \end{vmatrix} - b\begin{vmatrix} d & f \\ g & j \end{vmatrix} + c\begin{vmatrix} d & e \\ g & h \end{vmatrix}\end{aligned}$$

1.1 | Properties

1.1.1 | Multiplicative

$$|A||B| = |AB|$$