Step-1

The triangle with corners $(0,0),(1,0),(0,1)$ has area $=\frac{1}{2}\begin{vmatrix}1 & 0\\ 0 & 1\end{vmatrix}$

$=\frac{1}{2}(1-0)$

$=\frac{1}{2}$

Step-2

The pyramid with four corners $(0,0,0),(1,0,0),(0,1,0),(0,0,1)$

Volume of the pyramid $=\frac{1}{6}\begin{vmatrix}1 & 0 & 0\\ 0 & 1 & 0\\ 0 & 0 & 1\end{vmatrix}$

$=\frac{1}{6}\left[1(1-0)\right]$

$=\frac{1}{6}$

Step-3

The pyramid with five corners in $\mathbf{R^4}$ i.e. the pyramid in $\mathbf{R^4}$ with five corners at $(0,0,0,0)$ and the rows of 1 has volume $\frac{1}{8}$ cubic units.

Step-4

Visual representation of pyramid