

## Problem

Compute 
$$\det \begin{pmatrix} 0 & -7 & -4 \\ 2 & 4 & 6 \\ 3 & 7 & -1 \end{pmatrix}$$
 and : 
$$\det \begin{pmatrix} \begin{pmatrix} 3 & 7 & -1 \\ 2 & 4 & 6 \\ 0 & -7 & -4 \end{pmatrix} \times \begin{pmatrix} 2 & 4 & 6 \\ 3 & 7 & -1 \\ 0 & -7 & -4 \end{pmatrix} \times \begin{pmatrix} 2 & 4 & 6 \\ 0 & -7 & -4 \\ 3 & 7 & -1 \end{pmatrix} \times \begin{pmatrix} -1 & -2 & -3 \\ 0 & -7 & -4 \\ 3 & 7 & -1 \end{pmatrix}$$



### Problem

Compute 
$$\det \begin{pmatrix} \pi & e & 11 \\ 3\pi & 3e & 33 \\ 12 & -7 & 2 \end{pmatrix}$$

### Problem

# Bonus

Find the area of the interior E of the ellipse defined by the equation :

$$\left(\frac{2x-y}{2}\right)^2 + \left(\frac{y+3x}{3}\right)^2 = 1$$

Hint: The ellipse is obtained from the unit circle  $X^2 + Y^2 = 1$  by linear change of coordinates..