1. $\int_{\frac{\pi}{2}}^{\pi}(\int_{0}^{\cos(3\theta)} 1dr)d\theta$

   - $\int_{0}^{\cos(3\theta)} 1dr = \cos(3\theta)$
   - $\int_{\frac{\pi}{2}}^{\pi} \cos(3\theta)d\theta =$
     $\frac{\sin(3\theta)}{3}\Big|_{\frac{\pi}{2}}^{\pi} =$
     $-\frac{1}{9}$

2.