

d) Obliczyć gęstość δ elementu mierzonego oraz jej niepewność pomiarową $u_c(p)$ -tuleja

Dane	Wartość			
m[g]	8.24			
V[mm3]	453.4854123π			
u(V)[mm3]	360π			
u(m)[g]	0.0058			
Obliczanie Gęstości				
$\delta = \frac{m}{V} = \frac{0.72}{90.78966\pi} = 0.007930419 \frac{1}{\pi}$		$\frac{0.72}{90.78966}$	$\frac{0.72}{90.78966\pi}$	0.007930419
Obliczanie Niepewności Gęstości				
$\frac{d\delta}{dm} = \frac{1}{V} = \frac{1}{90.78966\pi}$ $\frac{d\delta}{dV} = -\frac{m}{V^2} = -\frac{0.72}{8242.762363\pi} = -0.0000873493579336095\pi$				
$u_c(\delta) = \sqrt{\left(\frac{d\delta}{dV} u(V)\right)^2 + \left(\frac{d\delta}{dm} u(m)\right)^2}$ $= \sqrt{0.0000000403622256531792 \left(\frac{1}{\pi}\right)^2 + \frac{0.00003364}{8242.762363} \left(\frac{1}{\pi}\right)^2}$ $= \sqrt{0.0000000403622256531792 \left(\frac{1}{\pi}\right)^2 + 0.000000004081156112342540000 \left(\frac{1}{\pi}\right)^2}$ $= \sqrt{0.000000044443381765521700000} \left(\frac{1}{\pi}\right)^2 = 0.000210816 \frac{1}{\pi} \approx 0.00022 \frac{1}{\pi}$				