d) Obliczyć gęstość δ elementu mierzonego oraz jej niepewność pomiarową uc(p)-kulka

Dane	Wartosc
m[g]	0.72
u(m)[g]	0.0058
u(V)[mm3]	2.3
V [mm3]	90.78966π

Obliczanie Gestosci

$$\delta = \frac{m}{V} = \frac{0.72}{90.78966\pi} = 0.007930419\ \frac{1}{\pi}$$

Obliczanie Niepewności gęstości

$\frac{d\delta}{dV}$=-
$\frac{m}{V^2}$=$-\frac{0.72}{V^2}$=$-\frac{0.72}{8242.762363\pi}$=
0.00008734935793360 95π

$\frac{d\delta}{dm}$=$\frac{1}{V}$=$\frac{1}{90.78966\pi}$

$$u_c(\delta) = \sqrt{(\frac{d\delta}{dV}u(V))^2+(\frac{d\delta}{dm}u(m))^2}$$

$$= \sqrt{0.000000040362225653179 2(\frac{1}{\pi})^2+\frac{0.00003364}{8242.762363}(\frac{1}{\pi})^2}$$

$$= \sqrt{0.000000040362225653179 2(\frac{1}{\pi})^2+0.000000004081156112342540000\ (\frac{1}{\pi})^2}$$

$$= \sqrt{0.000000044443381765521700000\ (\frac{1}{\pi})^2} = 0.000210816\frac{1}{\pi} \approx 0.00022\frac{1}{\pi}$$