Sample data sheet:

| U-304 | Value (in cm unless Diameter). Diameter in cm or mm | Absolute error | % error |
|---|---|---|---|
| Length (Vernier Caliper) | 3.280cm | .002cm | 0.06 |
| Diameter (Micrometer) | 24.35mm | .01mm | 0.04 |
| Area | 4.657cm^2 | .005cm^2 | 0.08 |
| Volume | 15.27cm^3 | .02cm^3 | 0.14 |

U-304

Lab

$\ell = 3.280\,cm \pm .002\,cm$ (% 0.06)

$D = 24.35_{mm} \pm .01\,mm$ (% 0.04)

$A = \frac{\pi}{4} D^2 = \frac{\pi}{4}(592.9225\,mm^2) \pm 0.47438$ (%0.08)

$100\,\frac{\delta A}{A} = \%A \Rightarrow \delta A = \frac{A \%A}{100}$

$\%A = 0.08$; $\frac{\pi}{4}\,592.9225\,mm^2 \pm 0.5\,mm^2$ (% 0.08)

$A = \frac{\pi}{4} 592.9\,mm^2 \pm 0.5\,mm^2$ (% 0.08)

$A = 465.68024\,mm^2 \pm 0.5\,mm^2$ (% 0.08)

$465.7\,mm^2 \pm 0.5\,mm^2$ (% 0.08)

$A = 4.657\,cm^2 \pm .005\,cm^2$ (% 0.08)

$V = \pi r^2 h$

$r = 12.17\,mm \pm .01\,mm$ (% 0.04) $\Rightarrow 1.217\,cm \pm 0.001\,cm$

$h = 3.280\,cm \pm 0.002\,cm$ (% 0.06)

I was told multiply area by $\ell$

$A\ell = [4.657\,cm^2 \pm .005\,cm^2$ (% 0.08)$]$ $3.280\,cm \pm .002\,cm$ (%.06)

$= 15.27496\,cm^3 \pm 0.02138\,cm^3$ (% 0.14)

$V = 15.27\,cm^3 \pm 0.02\,cm^3$ (% 0.14)