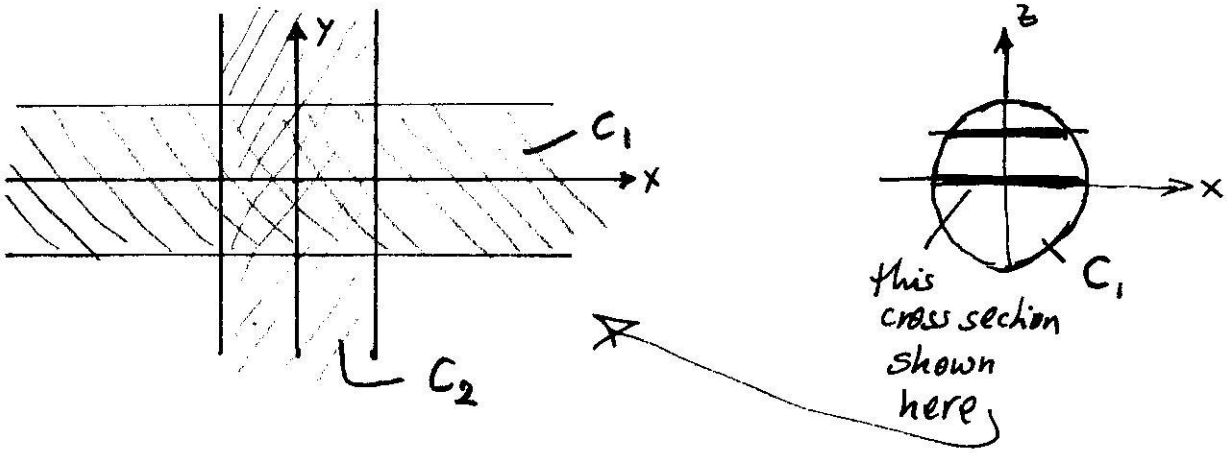
#35: cross section at level $z=0$ (with $r=1$ cm)



Cross section at levels $z = \pm\frac{1}{2}$: the strips have only width $2\cdot\sqrt{1^2-(\frac{1}{2})^2}$

otherwise the figure is the same.

cross section at levels $z = \pm 1$: only the lines that lie exactly above / below the x axis or y axis belong to the cylinder.

cross section area at level z is $A(z) = \left(2\sqrt{1-z^2}\right)^2$

$$\text{Volume} = \int_{-1}^{1} 4(1-z^2)\,dz = \frac{16}{3}$$