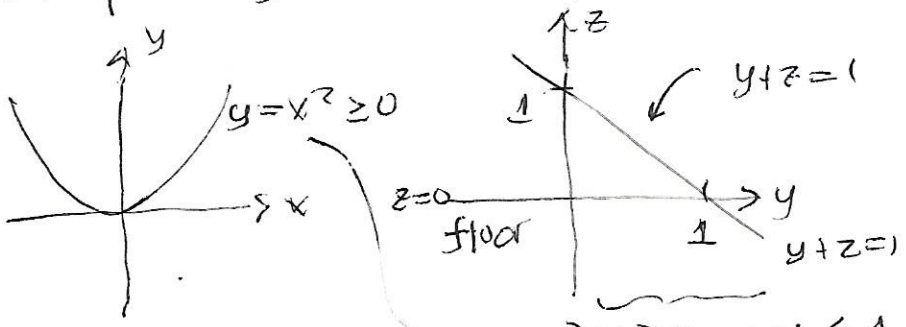
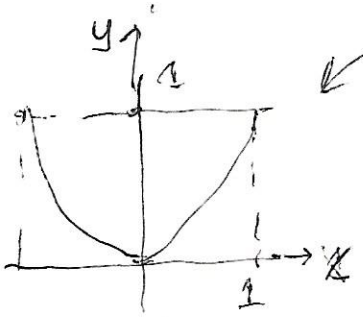
59 15.6.25 (visualizing the solid)

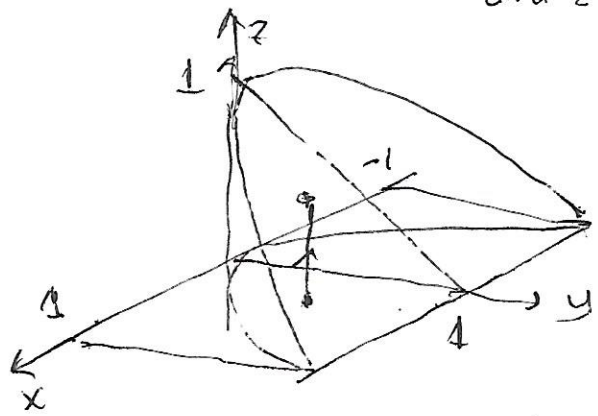
Find volume of solid enclosed by cylinder $y = x^2$ and the planes $y + z = 1$ and $z = 0$



$\rightarrow y \geq 0 \rightarrow y \leq 1$ to be between $z = 0$ and $z = 1 - y$

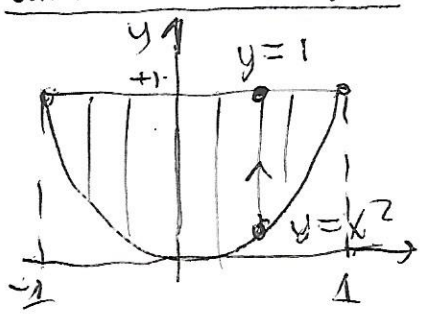


vertical side walls



z - first: $z = 0 \ldots 1 - y$ innermost integral

outer double integral



$y = x^2 \ldots 1$ while $x = -1 \ldots 1$

$$V = \int_{-1}^{1} \int_{x^2}^{1} \int_{0}^{1-y} 1 \, dz \, dy \, dx$$

$$= \frac{8}{15}$$

This can be iterated in 5 other ways!