$x_2 = 1$

$y_1 = c = 0$

$y_2 = d = 1$

$$V_{0y} = \pi \int_0^1 (y - y^2)\,dy = \pi \left(\frac{y^2}{2} - \frac{y^3}{3} \right) \Big|_0^1 =$$

$$= \pi \left(\frac{1}{2} - \frac{1}{3} \right) = \frac{\pi}{6}$$

5 Исследовать

$$\int_1^{+\infty} \frac{dx}{\sqrt{x}} \quad \lim_{b \to +\infty} \ln |\sqrt{x}| \Big|_1^b = \lim_{b \to \infty} \ln \sqrt{b} - \ln 1 | =$$

$$+ +\infty - 0 = +\infty \Rightarrow \text{Расх.}$$