

~~$$\int_{\frac{\pi}{3}}^{\frac{\pi}{2}} \sqrt{1 + \tan^2 x} dx =$$~~

$$\int_{\frac{\pi}{3}}^{\frac{\pi}{2}} \sqrt{1 + \left(\frac{dx}{dy} \log(\sin x) \right)^2} dx =$$

$$= \int_{\frac{\pi}{3}}^{\frac{\pi}{2}} \sqrt{1 + \left(\frac{\cos x}{\sin x} \right)^2} dx = \int_{\frac{\pi}{3}}^{\frac{\pi}{2}} \sqrt{1 + \frac{1}{\tan^2 x}} dx =$$

$$= \frac{\log \frac{3}{2}}{2} + \frac{\log 2}{2} + \left(\frac{\pi}{3} \right)$$

2. Трансформация

$$y = x, \quad y = x^2, \quad V_{og} = ?$$

$$V_{og} = \pi \int_0^1 x_2^2(y) - x_1^2(y) dy$$

$$x_2^2(y) = y$$

$$x_1(y) = y$$

$$x^2(y) = y$$

$$x = x \Rightarrow x_1 = 0$$