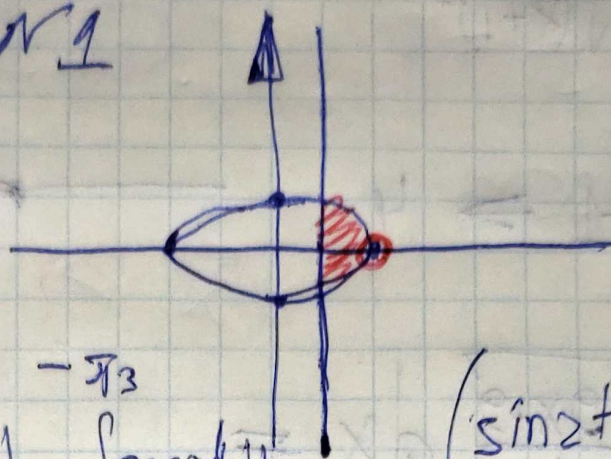


UUDY PK1 БУЛЕТ N 12(25)

$$\begin{cases} x = 2 \cos t \\ y = \sin t \end{cases}$$

$$t = \frac{\pi}{3}$$

N1



$$x = 1$$

$$-\frac{\sqrt{3}}{2}$$

$$-\frac{\sqrt{3}}{2}$$

$$-\frac{\sqrt{3}}{2}$$

$$S = \int_{\frac{\pi}{3}}^{-\frac{\pi}{3}} \sin^2 t \, dt = - \int_{\frac{\pi}{3}}^{-\frac{\pi}{3}} dt + \int_{\frac{\pi}{3}}^{-\frac{\pi}{3}} \cos 2t \, dt = \left(\frac{\sin 2t}{2} - t \right) \Big|_{\frac{\pi}{3}}^{-\frac{\pi}{3}} =$$

$$= -\frac{\sqrt{3}}{2} + \frac{\pi}{3} - \frac{\sqrt{3}}{2} + \frac{\pi}{3} = \frac{2\pi}{3} - \frac{\sqrt{3}}{2}$$

N2

$$y_1 = \pm \sqrt{x^2 - 1}$$

$$y_2 = \pm \sqrt{2(x-1)^2}$$

$$x^2 = 2x^2 - 4x + 2$$

$$x^2 - 4x + 2 = 0 \quad 2^2$$

$$D = 16 - 8 = 8$$

$$x = \frac{2 \pm \sqrt{8}}{2}$$

$$= 2 \pm \sqrt{2}$$

$$2 \pm \sqrt{2}$$

$$V = \pi \int_1^3 (x^2 - 1 - 2x^2 + 4x - 2) dx = \dots = \frac{4\pi}{3}$$

$$y = \pm \sqrt{(x+1)^3}$$

$$x = -4$$

$$-1 \Rightarrow 4$$

$$L = \int_{-4}^4 \sqrt{1 + \frac{9x+9}{4}} dx =$$

$$= \int_{-4}^4 \sqrt{\frac{9x+13}{4}} dx \quad \left| \begin{array}{l} t = 9x+13 \\ dx = \frac{dt}{9} \end{array} \right| =$$

$$= \frac{1}{18} \int_{-1}^4 \sqrt{t} dt = \dots = \frac{(9x+13)\sqrt{9x+13}}{27} = \left(\frac{335}{27} \right)$$

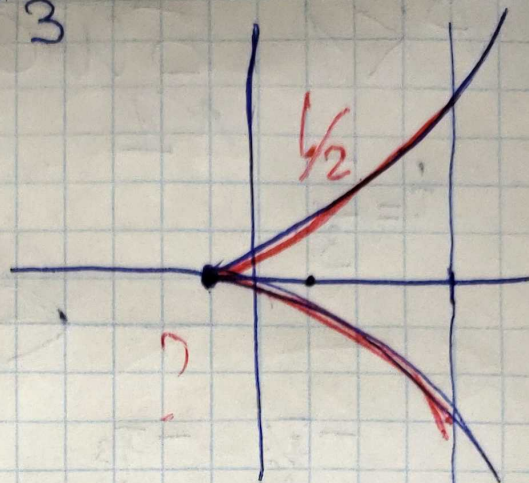
$$L = 2 \cdot \frac{L}{2} = \frac{670}{27}$$

$$\int_1^{+\infty} \frac{3\cos^2 2x}{\sqrt{x^3+1}} dx \quad I_{\text{poor}}$$

$$q = \frac{3}{2} \quad q > 1$$

$$\frac{3\cos^2 2x}{\sqrt{x^3+1}} \lesssim \frac{3}{\sqrt{x^3}} < \frac{3}{x^{3/2}}$$

$\sqrt[3]{3}$



$$L = \int_a^b \sqrt{1+(y')^2} dx$$

$$y' = \frac{3x^2+6x+3}{2\sqrt{x+1} \cdot |x+1|}$$

$\sqrt[3]{4}$

∞

$$\int_0^1 \frac{\ln(1+\sin x)}{x \cdot \sqrt{x}}$$

N5
II poc.

$$q = \frac{1}{2} \quad q < 1$$

exoc

$$\frac{\ln(1+\sin x)}{x \cdot \sqrt{x}} \lesssim \frac{x}{x^{3/2}} < \frac{1}{x^{1/2}}$$