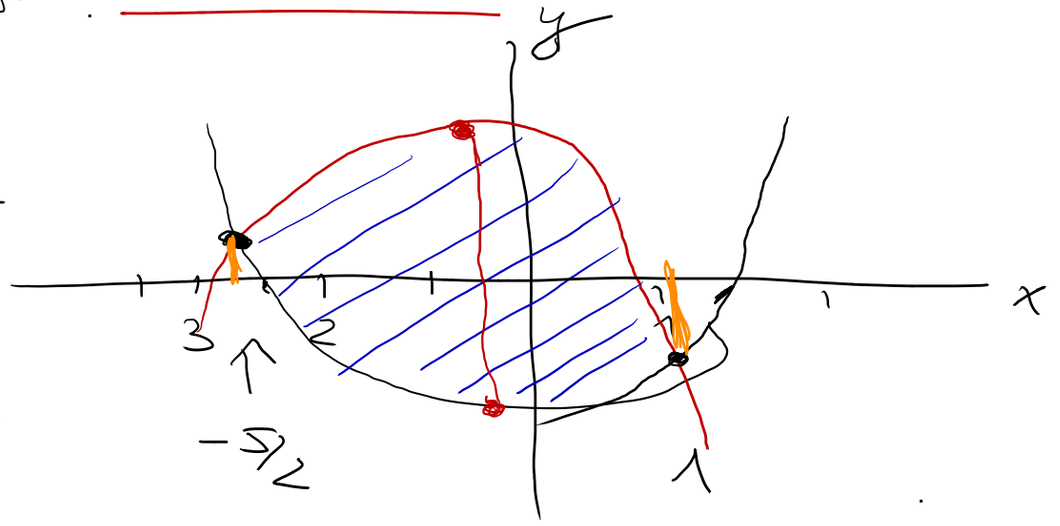
$f(x) = x^2 + x - 3$ $\quad g(x) = -x^2 - 2x + 2$

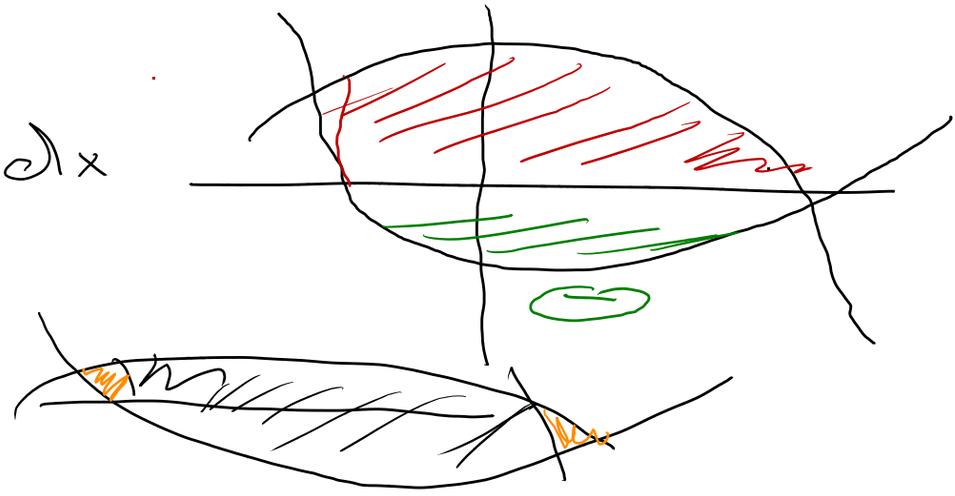



$$x^2 + x - 3 = -x^2 - 2x + 2$$

$$2x^2 + 3x - 5 = 0$$

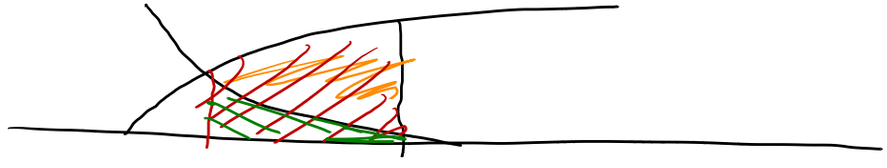
$$x_1 = 1$$

$$x_2 = -\frac{5}{2}$$



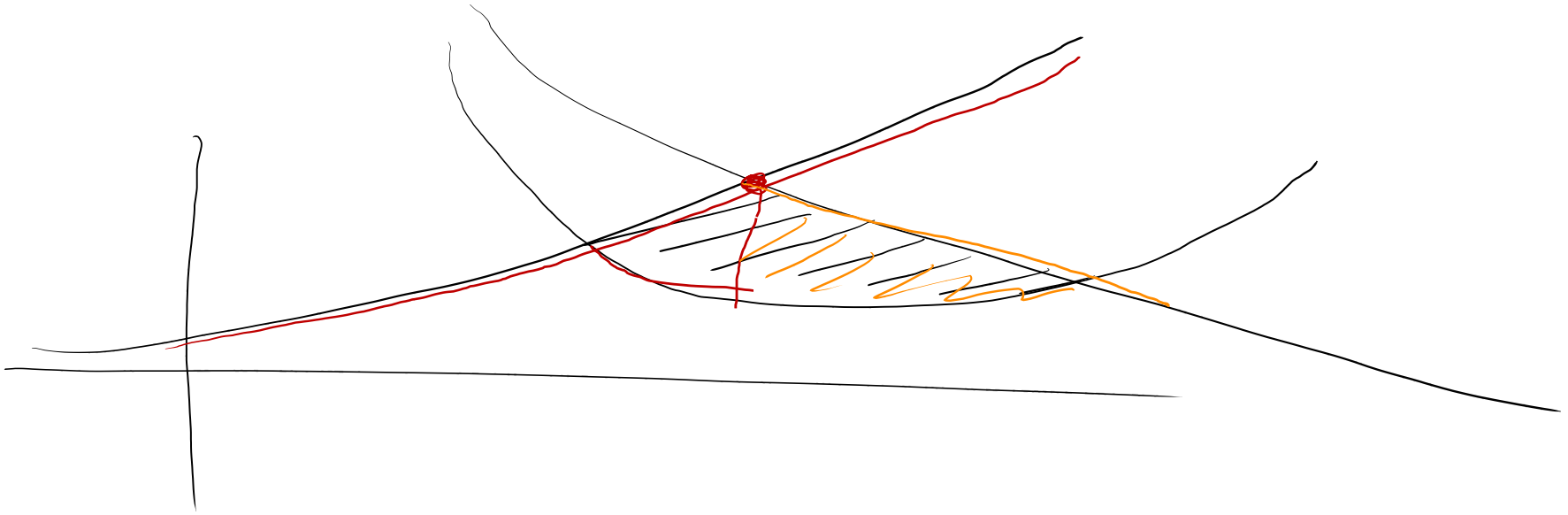
$$\int_{-5/2}^{1} -x^2 - 2x + 2 - (x^2 + x - 3)\, dx$$

$$= \int_{-5/2}^{1} -2x^2 - 3x + 5\, dx =$$



$$= \left[ -\frac{2x^3}{3} - \frac{3}{2}x^2 + 5x \right]_{-5/2}^{1}$$

$$= -\frac{2}{3} - \frac{3}{2} + 5 - \left( \frac{250}{54} - \frac{75}{8} - \frac{25}{2} \right) = \frac{343}{24}$$

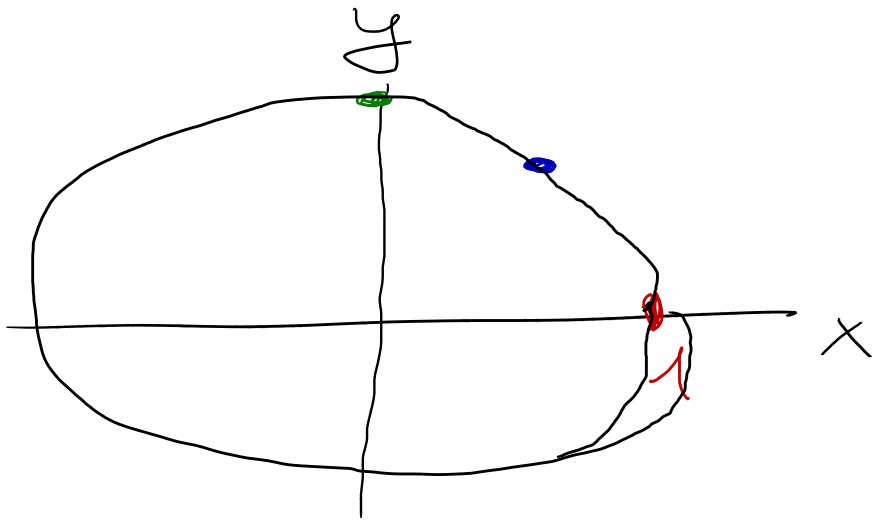


$t \longrightarrow$ $\begin{cases} x(t) = \cos t \\ y(t) = \sin t \end{cases}$

$\varphi(t)$

$\gamma(t)$

$t \in [0, 2\pi]$



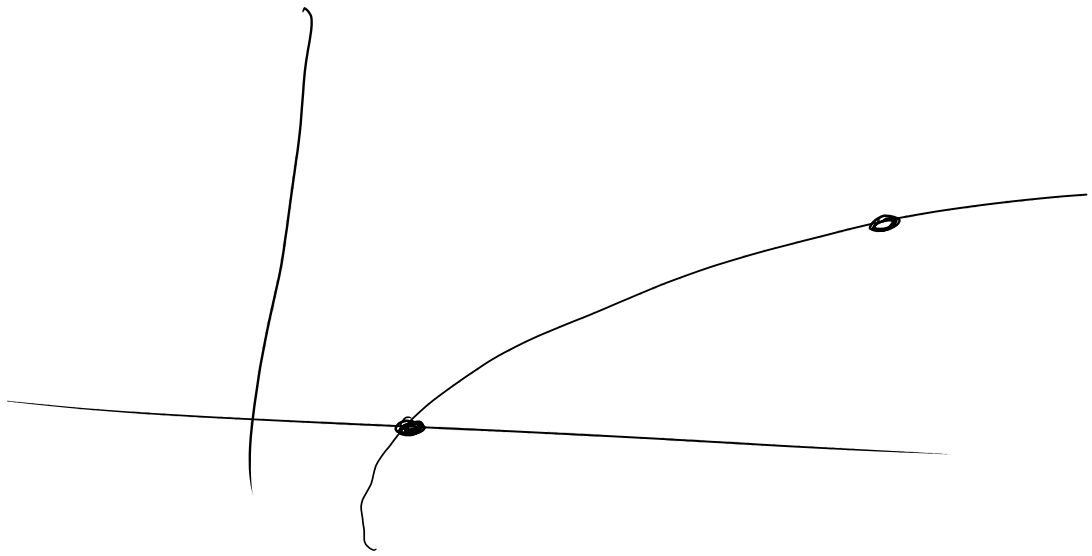

$t = 0$ $\quad \begin{cases} x = 1 \\ y = 0 \end{cases}$

$t = \frac{\pi}{4}$ $\quad x = \sqrt{2}/2$

$y = \sqrt{2}/2$

$t = \frac{\pi}{2}$ $\quad x = 0$

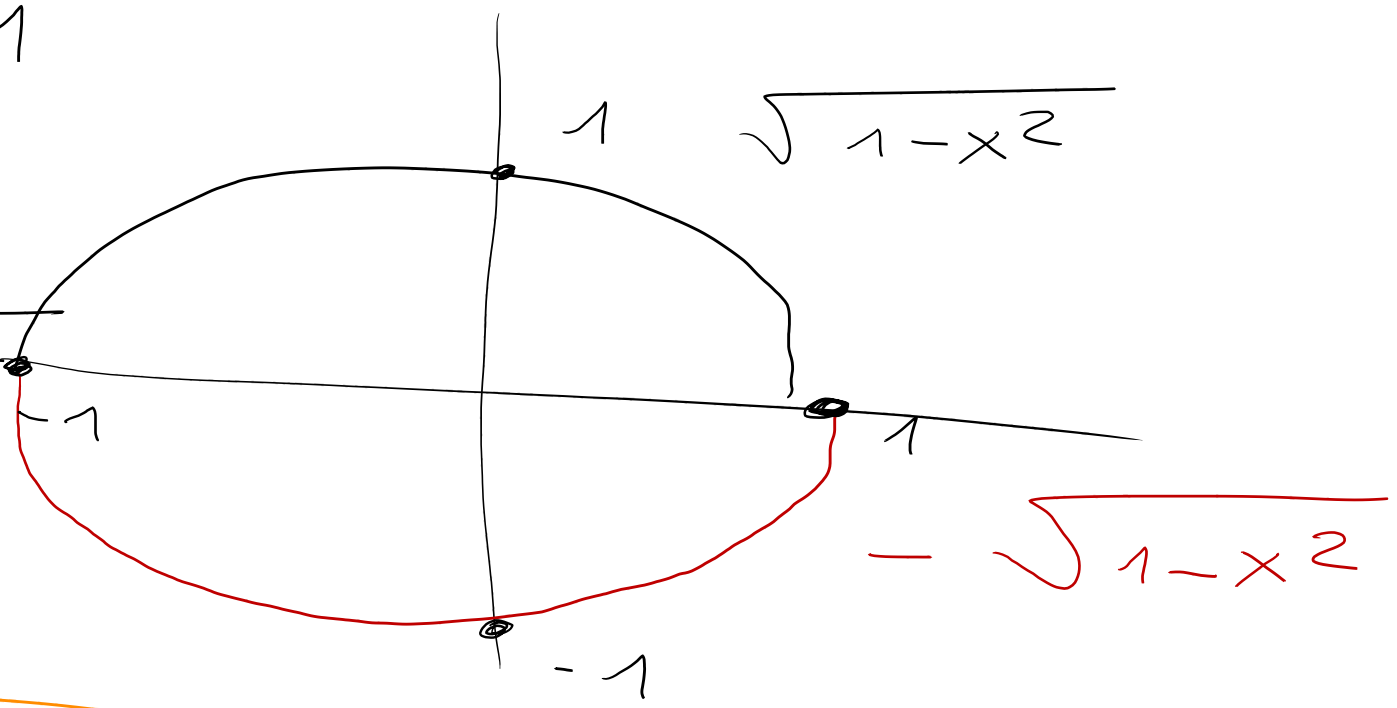
$y = 1$



$$x^2 + y^2 = 1$$

$$y^2 = 1 - x^2$$

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




$$\int_a^b \sqrt{1 - (f')^2}\, dx$$

$$t \qquad \begin{aligned} R\cos t &= \varphi(t) \\ R\sin t &= \psi(t) \end{aligned} \qquad t \in [0, 2\pi]$$

$$\ell = \int_a^b \sqrt{(\varphi')^2 + (\psi')^2}\, dt$$

$$\ell = \int_0^{2\pi} \sqrt{(-R\sin t)^2 + (R\cos t)^2}\, dt .$$

$$= \int_0^{2\pi} 1 \cdot R\, dt = \left[ R \cdot t \right]_0^{2\pi} = \underline{\underline{2\pi R}}$$

$$\sum a_n$$

$$\sum_{n=1}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6} \quad \text{k} \quad \Leftrightarrow \int_1^{\infty} \frac{1}{x^2}\,dx \quad \text{k}$$

$$\int_1^{\infty} \frac{1}{x^2}\,dx = \left[ -\frac{1}{x} \right]_1^{\infty} = \lim_{x \to \infty -} -\frac{1}{x} - \lim_{x \to 1+} -\frac{1}{x}$$

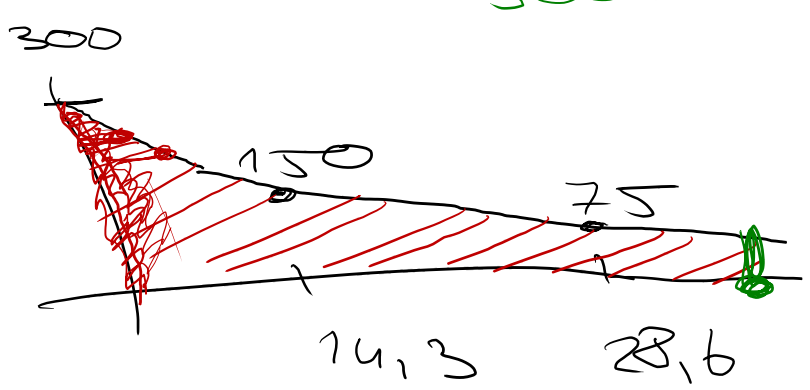
$$= 0 - -\frac{1}{1} = 1 \quad \text{k}$$

połowiczy rozpad $^{32}P$ poł. 14,3 dnia

20. zad.

300 mbum/den

max 5000 mbum/rok




$y(x) = ae^{-kx}$ $\quad y(0) = 300$

$\frac{dy}{}$ $\quad y(14,3) = 150$

$300 = y(0) = a e^{0} = a$ $\quad \boxed{a = 300}$

$150 = y(14,3) = 300 e^{-k \cdot 14,3}$

$\frac{1}{2} = e^{-k \cdot 14,3}$

$\ln \frac{1}{2} = -14,3k$

$k \doteq 0,0485$

$y(x) = 300 e^{-0,0485x}$

$$5000 = \int_0^d 300 e^{-0,0485x} dx = \left[ \frac{300 e^{-0,0485x}}{-0,0485} \right]_0^d$$

$$= \frac{300 e^{0,0485d}}{-0,0485} - \frac{300}{-0,0485}$$

$\boxed{d \doteq 34 \text{ dni}}$

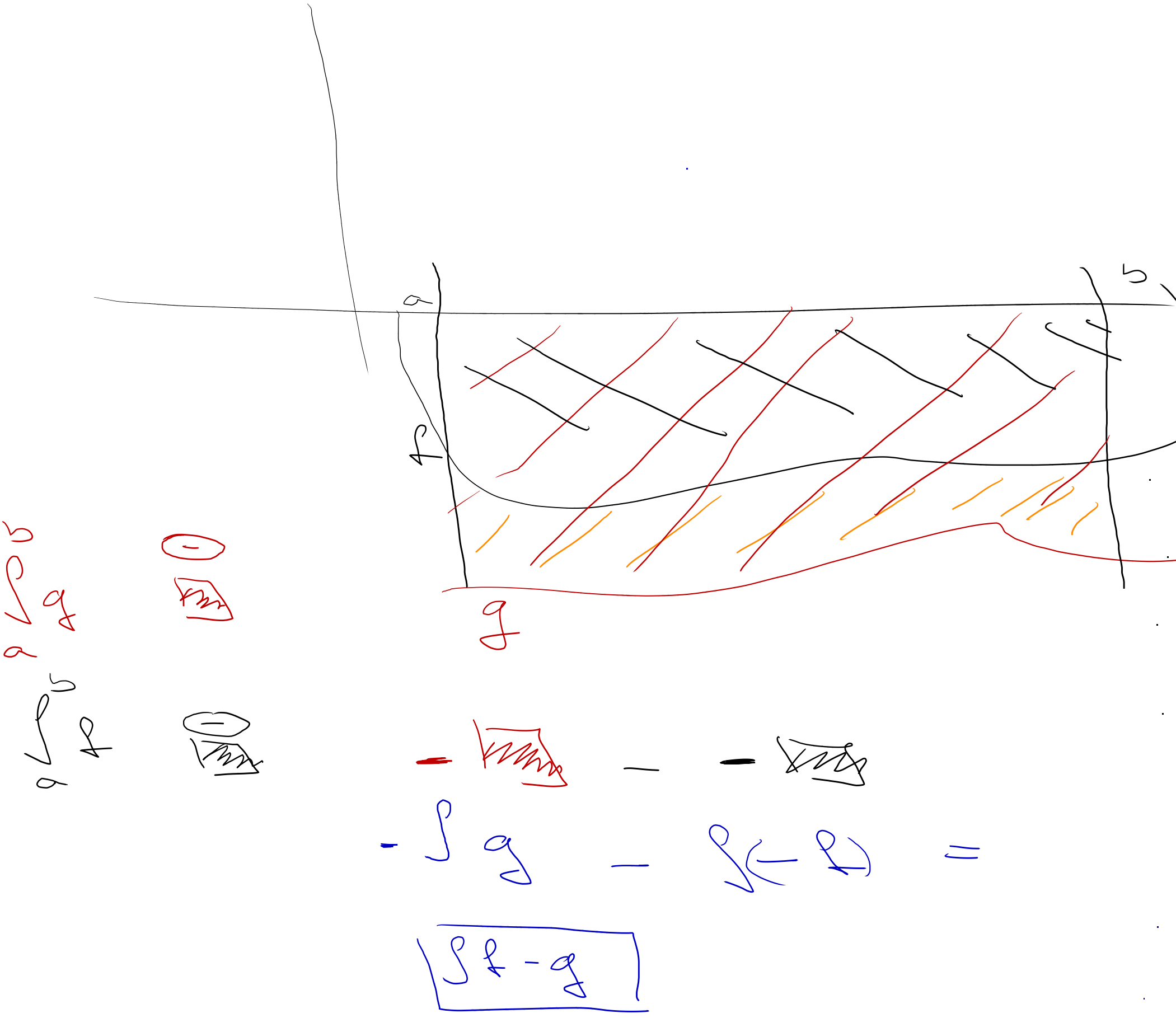
$$\operatorname{arctan} 1 = \frac{\pi}{4}$$

$$\tan(\operatorname{arctan} 1) = \tan\frac{\pi}{4}$$

$$1 = \tan\frac{\pi}{4}$$

$$\operatorname{arctan} 1 = ?$$

$$1 = \tan ?$$




$$\int_a^b f - \int_a^b g = \int_a^b (f - g) =$$

$$\boxed{\int_a^b f - g}$$