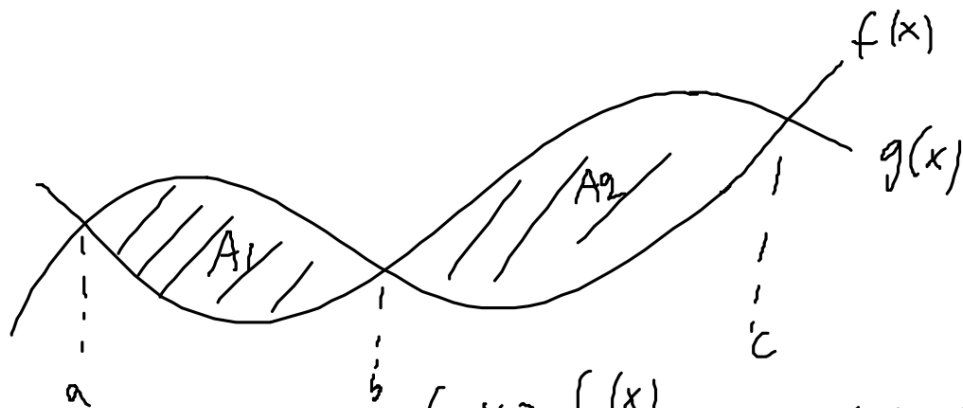


Kahden käyrän rajaama ala



1. Ratkaise lp: +

$$\begin{cases} y = f(x) \\ y = g(x) \end{cases} \rightarrow x=a, x=b, x=c$$

2. $A = A_1 + A_2$

$$A_1 = \int_a^b (f(x) - g(x)) dx$$

$$A_2 = \int_b^c (g(x) - f(x)) dx$$

↑ "ylempi - alempi"
↓

$$443. \quad \begin{cases} y = x^5 + x^3 = f(x) \\ y = 2x = g(x) \end{cases}$$

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

$$x(x^4 + x^2 - 2) = 0$$

$$\underline{x=0} \vee x^4 + x^2 - 2 = 0$$

$$x^2 = t$$

$$t^2 - t - 2 = 0$$

$$\vdots$$

$$t = -2 \vee 1$$

$$x^2 = -2 \quad x^2 = 1$$

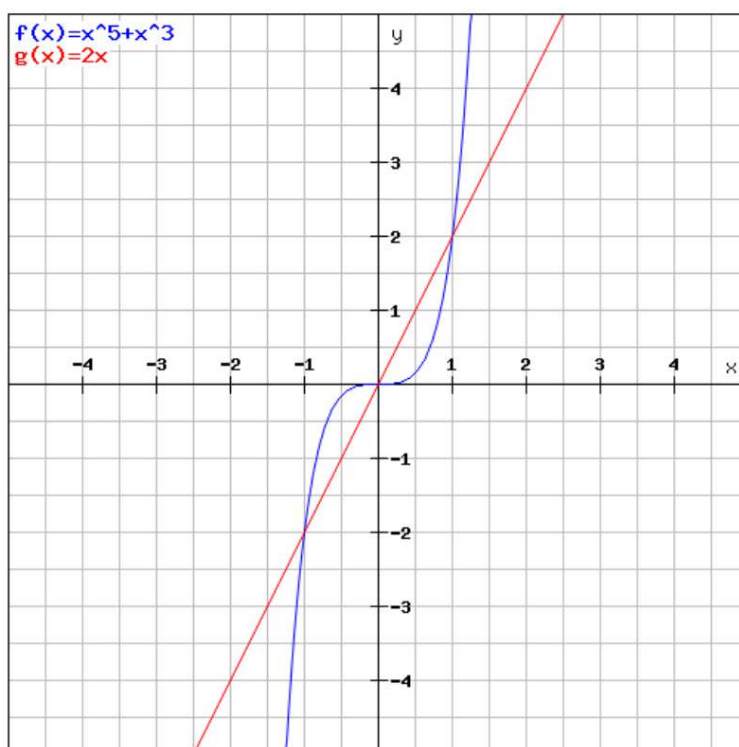


$$\underline{\underline{x = \pm 1}}$$

$$-1 \dots 0 \quad x = -0,5$$

$$f(-0,5) = -0,25 \in y/\text{comp}$$

$$g(-0,5) = -1$$



$$A_1 = \int_{-1}^0 (x^5 + x^3 - 2x) dx$$

$$= \int_{-1}^0 \left(\frac{1}{6}x^6 + \frac{1}{4}x^4 - x^2 \right) dx = \dots$$

0...1

$$x=0,5$$

$$f(0,5)=0,25$$

$$g(0,5)=1 \leftarrow y_{\text{emp}}$$

$$A_2 = \int_0^1 (2x - x^5 - x^3) dx = \left[x^2 - \frac{1}{6}x^6 - \frac{1}{4}x^4 \right]_0^1 = \dots$$

$$A = A_1 + A_2 = \frac{1}{6}$$