Hw2 / 1a

$\int_{-1}^{1} f_{(x)} = [7]_{-1}^{1} \quad \rightarrow 1$

b) $\int_{-\pi}^{\pi} f_{(x)} = [-\cos(x)]_{-\pi}^{\pi} \quad \rightarrow 0$

c) $\int_{0}^{\pi} f_{(x)} = [4\sin(x)]_{0}^{\pi} \quad \rightarrow 0$

d) $\int_{0}^{\pi} f_{(x)} = [-3\cos(x) + 5\sin(x)]_{0}^{\pi} = [-3\cos(x)]_{0}^{\pi} \quad \rightarrow 6$

e) $\int_{1}^{2} f_{(x)} = [e^x]_{1}^{2} = e^2 - e^1 \quad \rightarrow 4.67$

f $\int_{0}^{1} f_{(x)} = [e^t + 2]_{0}^{1} \quad \rightarrow 1.72$

/2
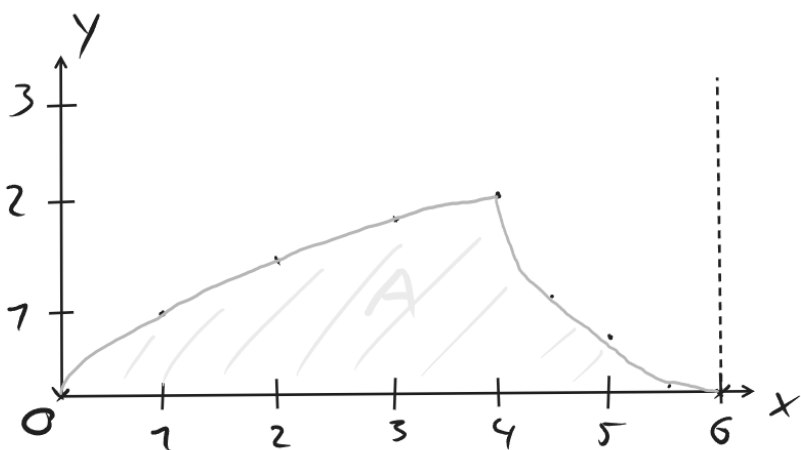
$A = A_1 + A_2$

$A_1 = \left[\frac{2}{3} x^{1.5}\right]_{0}^{4}$

$= 5\frac{1}{3}$

$A_2 = \left[\frac{1}{6} x^3 - 3x^2 + 18x\right]_{4}^{6}$

$= 1\frac{1}{3}$

$A = 6\frac{2}{3}$

/3a $F_{(x)} = 1e^y - 1y^3$

$\int f_{(x)} = [e^y - y^3]_{b}^{a} = e^a - a^3 - e^b + b^3$

b) $f_{(x)} = x^2 \cdot \sqrt{x} \cdot \frac{1}{\sqrt[3]{x^5}} = x^2 \cdot \sqrt{x} \cdot x^{-\frac{5}{3}}$

$\left| \left(\sqrt[3]{x^5}\right)^{-1} = (x^5)^{-\frac{1}{3}} = x^{-\frac{5}{3}}\right.$

$= x^2 \cdot x^{\frac{1}{2}} \cdot x^{-\frac{5}{3}} = x^{\frac{5}{6}}$

$\int f_{(x)} = \left[\frac{6}{11} \cdot x^{\frac{11}{6}}\right]_{b}^{a} = \frac{6}{11} \cdot a^{\frac{11}{6}} - \frac{6}{11} \cdot b^{\frac{11}{6}}$

c) $\lim_{x \to \infty} \int_{-1}^{\infty} |x|^{-2} \, dx = \infty$