

Problem 1. Compute the definite integral

$$\int_{-1}^2 \frac{x^2}{\sqrt{1+x^3}} dx.$$

Problem 2. Compute the average distance between the sine and cosine waves by computing

$$\frac{2}{\pi} \int_{\pi/4}^{3\pi/4} (\sin x - \cos x) dx.$$