🎃 MATH 21B SPOOKY DISCUSSION WORKSHEET 5 🎃

Problem 1. Find the length of the curve

$$y = \int_0^x \sqrt{(4\sec^2(t)\tan^2(t) - 1)}\, dt$$

with $\frac{\pi}{6} \leq x \leq \frac{\pi}{3}$.

Problem 2. Find the area of the surface generated by revolving the curve $x = \frac{1}{3}(👻 + 1)^3$ over $0 \leq 👻 \leq 2$ about the 👻-axis.

Problem 3. Write (but do not compute) an integral for the area of the surface generated by revolving the curve $y = \sqrt{x^2 + 15}$ over $-1 \leq x \leq 7$ about the x-axis.

Problem . Evaluate the following definite integrals:

(a) $\int_4^9 \left(\frac{1}{\square - \sqrt{\square}}\right) d\square$

(b) $\int_1^{e^2} \left(\frac{\log_2(\blacktriangle)}{\blacktriangle}\right) d\blacktriangle$