Recommended problems (Not to turn in)

Section 8.1: 2,10,12,16,18,20,22,26,34
Section 8.2: 8,10,12,16,18,20,28,30

Problems to turn in

Problem #1. (Section 8.1)
Find the exact length of the curve \( y = \frac{x^5}{5} + \frac{1}{12x^3} \) from \( x = 2 \) to \( x = 7 \).

Problem #2. (Section 8.1)
Use Simpson’s Rule with \( n = 10 \) to approximate the length of the curve \( x = y^6 \) from \( y = 1 \) to \( y = 5 \). Give the maximum theoretical error, estimating \( K_4 \) from the graph.

Problem #3. (Section 8.1)
Find the arc length function for the curve \( y = \cosh x \) from the starting point \((\ln 3, \frac{5}{3})\).

Problem #4. (Section 8.2)
Find the exact area of the surface generated by rotating the curve \( y = \sqrt{1 + x^2} \) on \( 3 \leq x \leq 4 \) around the \( x \)-axis.

Problem #5. (Section 8.2)
Find the exact area of the surface generated by rotating the curve \( y = \frac{1}{4}x^2 - \frac{1}{2}\ln x \) on \( 2 \leq x \leq 3 \) around the \( y \)-axis.