

PROBLEM SET #2

Due Friday, February 9, 2024 @ 12:30 pm

Submit as single pdf file to Canvas

Remember to review the [Guidelines for WeBWorK and Problem Sets](#) on the course webpage when writing up your solutions. The rule of thumb is that you should give enough explanation so that you could hand your assignment to a student who took Calc II last semester and they could follow your solutions.

1. Evaluate $\int \arcsin(x) dx$

Verify your answer by taking the derivative. Show all steps in this process.

2. Evaluate $\int \cos(\sqrt{x}) dx$

Verify your answer by taking the derivative. Show all steps in this process.

3. Let $\mathcal{I} = \int_0^2 \sqrt{3x^2 + 1} dx$

(a) Use WolframAlpha to calculate T_{10} , the trapezoid sum with 10 subdivisions for \mathcal{I}

(b) Use Theorem 5.5.1, to determine the largest possible error $|\mathcal{I} - T_{10}|$.

4. Repeat problem #3, but use S_n , Simpson's rule, rather than the trapezoid sum to approximate \mathcal{I}