Quiz #3, 2/1
Math 157 (Calculus II), Spring 2023

Problem 1 is worth 3 points, Problem 2 is worth 3 points, and Problem 3 is worth 4 points, for a total of 10 points. Remember to *show your work* on all problems!

1. Compute the indefinite integral $\int (x^2 + x + 1)\,\sin(x)\,dx$ using integration by parts. (**Hint**: you will have to use integration by parts *multiple times*.)

2. Compute the indefinite integral $\int \frac{1}{x} \cdot \ln(x)\,dx$. (**Hint**: you can use *either* u-substitution *or* integration by parts for this one.)

3. Compute the definite integral $\int_1^{\sqrt{e}} x\,\ln(x)\,dx$ using integration by parts. Express your answer in the simplest form you can.