Name_____ Student ID_____ TA's name_____

Math 231 Homework 2

Due March 4th, 2019 at the beginning of the class.

1. evaluate $\int \frac{2x+5}{x^2+4x+8}\,dx.$

2. Write out the form for the partial fraction expansion of $\frac{x^6+3x^2+1}{(x^2+4)^2(x-1)^3}$. Do not solve for the constants–leave them as A, B, C, etc..

3. Use the method of partial fractions to evaluate $\int \frac{2x^2-x+4}{(x^2+4)(x-1)}\,dx.$

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4. Evaluate:

(a) $\int \frac{x}{x^4 + 2x^2 + 2}\, dx.$ Is there any reasonable choice of u for which du appears in the numerator?

(b) $\int \ln(x^2 + 1)\, dx.$ Is there an obvious substitution? If not, what can you do?

(c) $\int \frac{dx}{\sqrt{x} + x\sqrt{x}}.$

(d) $\int \frac{dx}{x + \sqrt[3]{x}}.$