Math 212 GH Quiz 2B
February 3, 2020

Name: _____

Instructions: Use your own scrap paper and write your answers in the space provided.

1. State the Integration by Parts Formula: _____

2. What mnemonic tells you how to choose u in the above formula? _____

3. Complete the following rules:

(a) $\int \dfrac{1}{x}\, dx =$ _____

(b) $\int \sinh x\, dx =$ _____

(c) $\int \ln x\, dx =$ _____

(d) $\int x^n\, dx =$ _____ $(n \neq -1)$

4. Integrate the following:

(a) $\displaystyle\int_0^{\pi^2} \sqrt{x}\sin\sqrt{x}\, dx =$ _____

(b) $\int \dfrac{x^3}{\sqrt{1+x^2}}\, dx =$ _____

(c) $\int x^3 e^x\, dx =$ _____

(d) $\int \dfrac{e^{-2x}}{e^{-4x}-1}\, dx =$ _____

Bonus:
1. Complete the following rules:

(a) $\dfrac{d}{dx}\log_a x =$ _____

(b) $\int \tan x\, dx =$ _____

(c) $\int \sec x\, dx =$ _____

(d) $\int \sec^3 x\, dx =$ _____

(e) $\int \dfrac{1}{\sqrt{x^2-1}}\, dx =$ _____