

Math 212 RS2 Quiz 2A

February 4, 2020

Name: _____

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

1. Complete the following rules:

(a) $\int \ln x \, dx =$ _____ (b) $\int \frac{1}{\sqrt{x^2 - 1}} \, dx =$ _____

(c) $\int \frac{1}{x} \, dx =$ _____ (d) $\int \cosh x \, dx =$ _____

2. State the Integration by Parts Formula: _____

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

4. Integrate the following:

(a) $\int_0^{\sqrt{\pi}} x^3 \sin x^2 \, dx =$ _____ (b) $\int \frac{x^3}{\sqrt{1-x^2}} \, dx =$ _____

(c) $\int x^3 e^{2x} \, dx =$ _____ (d) $\int \frac{e^{-3x}}{e^{-6x} - 1} \, dx =$ _____

Bonus:

1. Complete the following rules:

(a) $\int \frac{1}{\sqrt{1+x^2}} \, dx =$ _____ (b) $\int \sec x \, dx =$ _____

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

(e) $\frac{d}{dx} \log_a x =$ _____