

## Math 212 RS2 Quiz 2B

February 4, 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)  $\int \frac{1}{x} dx =$  \_\_\_\_\_ (b)  $\int \frac{1}{\sqrt{1+x^2}} dx =$  \_\_\_\_\_

(c)  $\int \ln x dx =$  \_\_\_\_\_ (d)  $\int \sinh x dx =$  \_\_\_\_\_

4. Integrate the following:

(a)  $\int_0^{\sqrt{\pi}} x^3 \cos x^2 dx =$  \_\_\_\_\_ (b)  $\int \frac{x^3}{\sqrt{16-x^2}} dx =$  \_\_\_\_\_

(c)  $\int x^2 e^{3x} dx =$  \_\_\_\_\_ (d)  $\int \frac{e^{-2x}}{e^{-4x}-1} dx =$  \_\_\_\_\_

**Bonus:**

1. Complete the following rules:

(a)  $\frac{d}{dx} \log_a x =$  \_\_\_\_\_ (b)  $\int \tan x dx =$  \_\_\_\_\_

(c)  $\int \sec x dx =$  \_\_\_\_\_ (d)  $\int \sec^3 x dx =$  \_\_\_\_\_

(e)  $\int \frac{1}{\sqrt{x^2-1}} dx =$  \_\_\_\_\_