MATH 241 RECITATION APRIL 30, 2019

Name: _____ **Section (circle one): 3 4**

Complete the following problems in small groups. Please show all your work! Julian and I will come around if you need any assistance.

1. Find the derivative of the following

   (a) $f(x) = \int_{-2}^{x} \frac{t^2}{\sqrt{1-t^2}} dt \; d$

   (b) $f(x) = \int_{x^2}^{3} 2e^t \cos t \; dt$

   (c) $f(x) = \int_{\cos x}^{54} \ln t^2 - \csc(t) + \sqrt[3]{3t-1} \; dt$

2. Find the antiderivative or evaluate the integral of the following.

   (a) $\int_0^1 \frac{3}{2}x^2 - \frac{1}{4}x + e \; dx$

   (b) $\int_1^2 \frac{x^4+1}{x^2} \; dx$

(c) $\int (x^2 - 2x)\sqrt{2x^3 - 6x^2 - 5}\, dx$

3. Find the area of the region enclosed by the following curves: $y = 3 - 2x^2$, the line $y = 1$, and the vertical lines $x = 2$ and $x = -2$

4. Find the resulting volume when the region bounded by the lines $y = \frac{1}{2}x + 2$ and $y = x$ in the *first quadrant*, when rotated about the line $x = 6$. What about when this region is rotated about the line $y = -2$?

The End.