

**Test #3 (Part 1 – No Calculator)**

Name: \_\_\_\_\_

Math 180, Prof. Beydler

Wednesday, November 28, 2018

**Directions:** Show all work. No calculator, books, or notes. Your desk and lap must be clear (no phones, no smart watches, etc.). If you have a phone in your lap or on your chair, it is considered cheating, and you will receive a zero on this test. Write your answers in the indicated places, or box your answers. When you're finished with Part 1, please turn it in, take a bathroom break, get your calculator out, and start Part 2. Good luck!

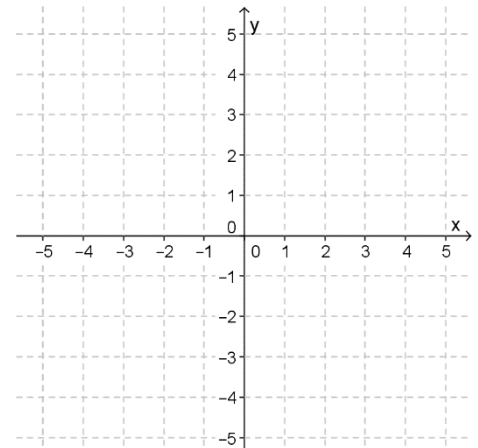
1. (3 points) Find the most general antiderivative for  $f(x) = \frac{3}{\sqrt[3]{x}} - \frac{2}{5x} - \cos 2x - 4 \csc^2 x + \frac{2}{\sqrt{1-x^2}}$

Answer: \_\_\_\_\_

2. (2 points) Graph the integrand and use the area under the graph to evaluate the integral.

$$\int_0^3 (2 + \sqrt{9 - x^2}) dx$$

Answer: \_\_\_\_\_



3. (2 points) Use Part 1 of the Fundamental Theorem of Calculus to find the derivative of

$$f(x) = \int_{1/x}^2 \sin^3 t dt$$

Answer: \_\_\_\_\_

4. Evaluate. Write your answers in exact form.

a) (3 points)  $\int_0^1 \left( \frac{3}{1+x^2} + \frac{1}{x+1} \right) dx$

Answer: \_\_\_\_\_

b) (3 points)  $\int_0^{\pi/2} 2^{\cos x} \sin x dx$

Answer: \_\_\_\_\_

c) (1 point)  $\int_{-2}^2 |x| \sin x dx$

Answer: \_\_\_\_\_

d) (3 points)  $\int x^2 e^{-3x} dx$

Answer: \_\_\_\_\_

e) (3 points)  $\int_0^{\pi/3} \sec^2 x dx$

Answer: \_\_\_\_\_