Name: _____

Instructions: All solutions should be prepared carefully and neatly. All solution sets shall be completed on this packet and handed in at the beginning of class on the due date below. Careless presentation (e.g. bad handwriting, pen scribbles, doodles, wasted space, etc) will result in a deduction of points at my discretion. Use a PENCIL and if you make a mistake, use an eraser. Submitted work that does not demonstrate clearly the process by which one arrived at the answer will not receive credit of any kind. Academic dishonesty will not be tolerated.

Problem Set I

MAT 182-010 – Calculus II

Due: Wednesday, January 30

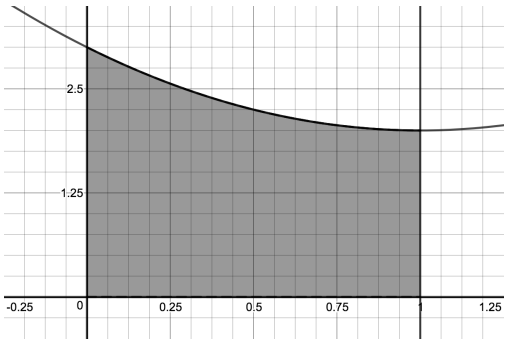
Read: Syllabus and Sections 5.1–5.5, 6.1–6.2

Problem Number	Available Points	Your Points
1	3	
2	3	
3	3	
4	2	
5	3	
6	4	
7	4	
8	3	
Total	25	

1. Suppose your quiz grade is 85%, your overall homework grade is 89%, and you got a 86%, 96%, 88%, and 91% on the four exams. Based on the grading policy in this course, what percentage would you need on the final exam to earn an A in the class? [(3)]

2. Approximate the area $\int_{-1}^{2} x^3\,dx$ using a midpoint Riemann Sum with $n = 4$ subintervals. [(3)]

3. Compute the area depicted in the figure below using the Fundamental Theorem of Calculus: [(3)]



4. Compute the derivative of the following area functions: [(2)]

   (a) $A(x) = \int_3^x (t^2 + t + 1)\, dt$

   (b) $B(x) = \int_{10}^{x^2} \frac{1}{t^2 + 1}\, dt$

5. Compute the following indefinite integrals: [(3)]

   (a) $\int (x^4 + 3x^2 + 2x - 1)\, dx$

   (b) $\int 2^x\, dx$

   (c) $\int \frac{1}{1 + x^2}\, dx$

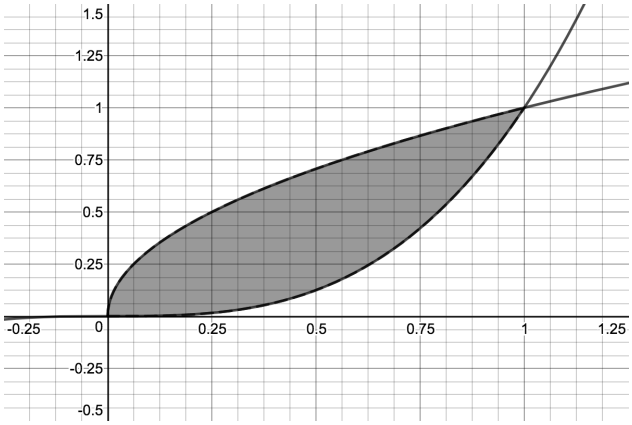
6. Compute the following definite integrals: [(4)]

   (a) $\int_4^9 \frac{2 + \sqrt{x}}{x}\, dx$

   (b) $\int_0^{\pi/4} 2\cos(x)\, dx$

7. Use u-substitution to compute the following indefinite and definite integrals: [(4)]

   (a) $\int 8x\cos(4x^2+3)\,dx$

   (b) $\int_0^4 \frac{x}{\sqrt{9+x^2}}\,dx$

8. Compute the area depicted in the figure below: [(3)]