

Math 251 Fall 2017

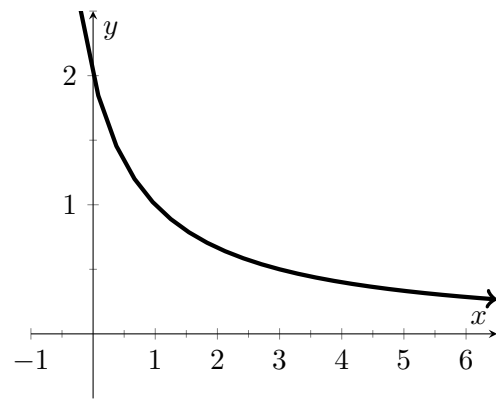
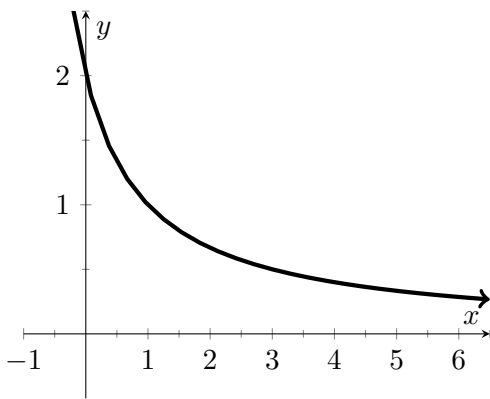
Quiz #10, November 22nd

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

There are 25 points possible on this quiz. This is a closed book quiz. Calculators and notes are not allowed. **Please show all of your work!** If you have any questions, please raise your hand.

Exercise 1. (9 pts.) Estimate the area under  $f(x) = \frac{2}{x+1}$  from  $x = 0$  to  $x = 6$  using three approximating rectangles and

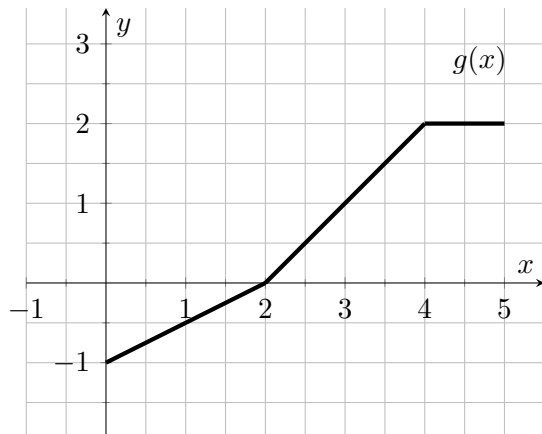
- (a.) left endpoints. Sketch the rectangles on the graph below. (b.) midpoints as sample points. Sketch the rectangles on the graph below.



Exercise 2. (3 pts.) The speed of a skier increased steadily during the first three seconds of a race. Her speed at half-second intervals is given in the table. Find a lower estimate for the distance she traveled during the first three seconds. Include units with your answer.

time (in seconds)	0	0.5	1	1.5	2	2.5	3
velocity (in feet/sec)	0	6	12	16	20	22	24

Exercise 3. (4 pts.) Use the graph of  $g(x)$  to evaluate the integral  $\int_0^5 g(x) dx$ .



Exercise 4. (4 pts.) Evaluate the integral  $\int_{-2}^2 (\sqrt{4-x^2} + 3) dx$  by interpreting it in terms of areas.

Exercise 5. (5 pts.) Assume that  $\int_1^5 f(x) dx = 8$ . Use this fact and the properties of integrals to evaluate the integrals below.

(a.)  $\int_5^1 f(x) dx$

(b.)  $\int_1^5 (7 - 2\pi f(x)) dx$