

Math 251 Fall 2017

Quiz #10, November 22nd

Name: _____

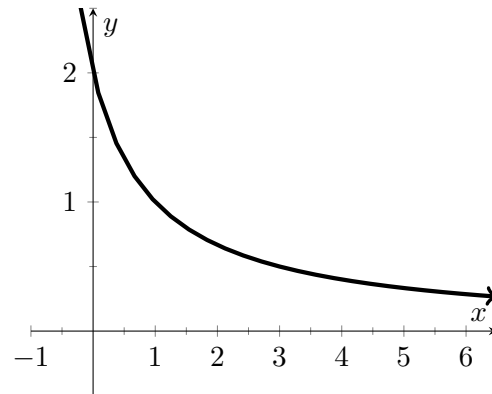
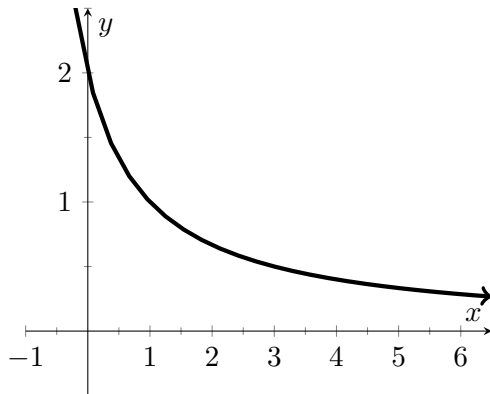
There are 25 points possible on this quiz. This is a closed book quiz. Calculators and notes are not allowed. **Please show all of your work!** If you have any questions, please raise your hand.

Exercise 1. (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.

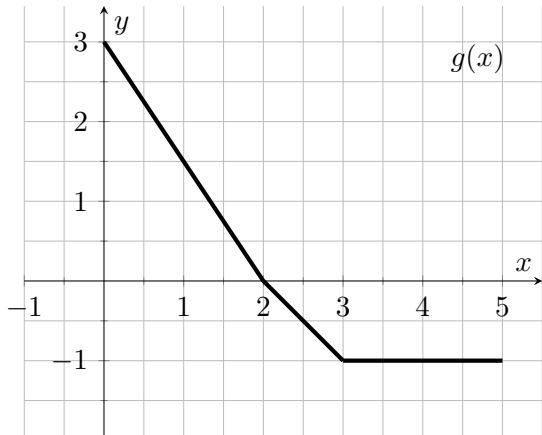
time (in seconds)	0	0.5	1	1.5	2	2.5	3
velocity (in feet/sec)	0	4	10	14	20	22	24

Exercise 2. (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 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 $\int_{-5}^5 (\sqrt{25 - x^2} + 2) dx$ by interpreting it in terms of areas.

Exercise 5. (5 pts.) Assume that $\int_1^5 f(x) dx = 6$. Use this fact and the properties of integrals to evaluate the integrals below.

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

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