

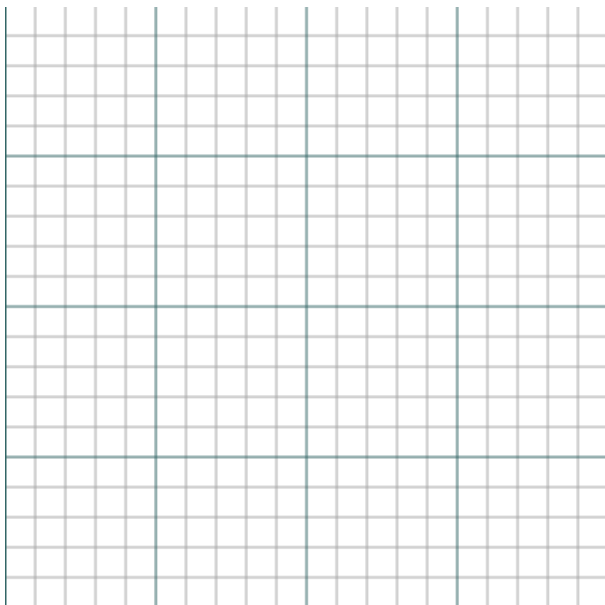
Quiz 6, Calculus I

Dr. Adam Graham-Squire, Fall 2017

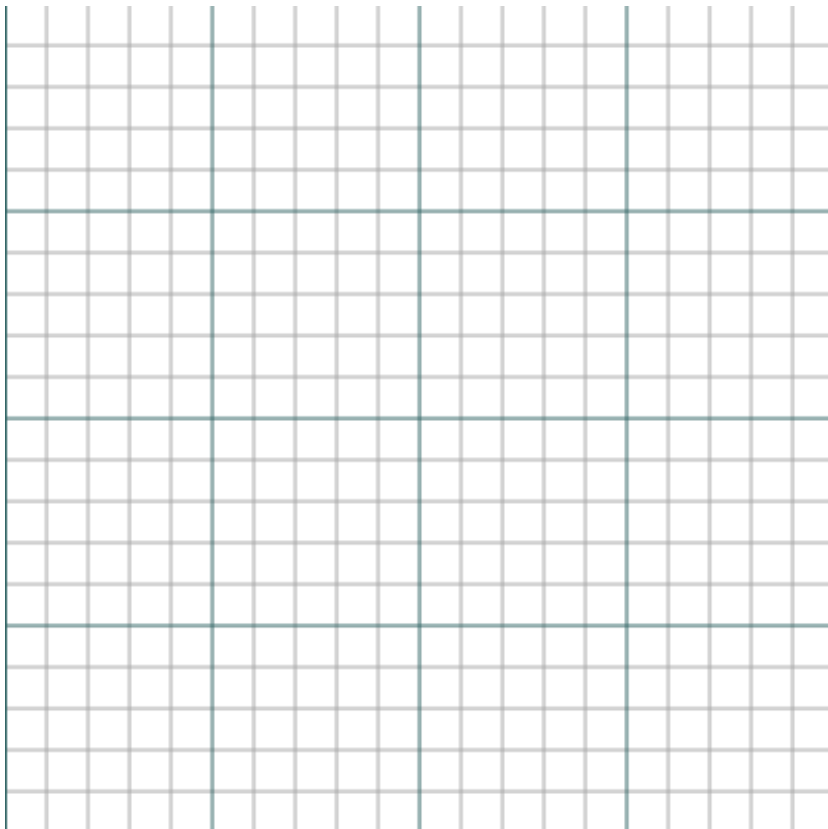
Name: _____

1. (3 points) (a) Use 5 rectangles and right endpoints to approximate the area under the curve $f(x) = 2x + 1$ on the interval $[0, 4]$.

(b) Is your answer an *overestimate* or an *underestimate* of the actual area? Explain how you know. (Note: you can use the graph below to help you find your answers, but it is not necessary to graph the curve to get full points.)



2. (3 points) Use geometry to calculate the exact area under the curve $f(x) = 2x + 1$ on the interval $[0, 4]$. You can check your answer by finding the definite integral, but will only receive full points if you explain your answer through geometric equations for area.



3. (4 points) Use antiderivatives to evaluate the definite integral

$$\int_1^e (x^4 + \frac{1}{x}) dx$$

Simplify your answer as much as possible, but you should leave your answer in exact form (no decimal approximation).