## MA161 FINAL EXAM PRACTICE — ALDEN BRADFORD — FALL 2018

1. Find the derivative of the function

$$g(x) = \int_0^x \cos(2\pi t) \, dt$$

- 2.  $f''(x) = \cos x \sin x$ , f'(0) = 0, and  $f(\frac{\pi}{4}) = 0$ . Find  $f(\frac{\pi}{2})$ .
- 3. Estimate the area under the graph of  $f(x) = x^2$  from x = 0 to x = 3 using three approximating rectangles, equal width subintervals, and right endpoints.
- 4. Find f, given that  $f(\frac{1}{2}) = 9$  and  $f'(x) = \frac{7}{\sqrt{1-x^2}}$

5. If 
$$\int_{a}^{b} f(x) dx = 5$$
 and  $\int_{a}^{b} g(x) dx = -1$ , which of the following MUST be true?

I. 
$$f(x) > g(x)$$
 for  $a \le x \le b$   
II.  $\int_{a}^{b} [f(x) + g(x)] dx = 4$   
III.  $\int_{a}^{b} [f(x)g(x)] dx = -5$ 

6. Evaluate the integral by interpreting it in terms of areas.

$$\int_{-4}^{0} (1 + \sqrt{16 - x^2}) \, dx$$