

No books, notes or graphing calculators. Turn off your cell phones.

- (5) 1. Find the most general anti-derivative of the function

$$f(x) = \frac{1 - x^2}{x}$$

- (5) 2. Consider the graph of the function $y = x^3$ on the interval $[0, 1]$. Estimate the area under the graph using the Right end-point Riemann sum for $n = 4$. You can use a simple calculator for this problem. Do you get an under-estimate or an over-estimate?

3. [Bonus problem: 1 bonus point] Find an anti-derivative of the function

$$f(x) = (1 + \ln x)x^x$$

Hint: What is the derivative of x^x ?