

The 4th Quiz of Calculus 0423

學號：_____ 姓名：_____

1.(20%) Find the area of the region between the graphs of

$$f(x) = 3x^3 - x^2 - 10x \quad \text{and} \quad g(x) = -x^2 + 2x$$

2. (20%) Find the volume of the solid formed by revolving the region

bounded by the graphs of $y = \sqrt{x}$ and $y = x^2$ about the x -axis .

3. (20%) Find the volume of the solid formed by revolving the region bounded by the graphs of $y = x^2 + 1$, $y = 0$, $x = 0$ and $x = 1$ about the y -axis.

4. (20%) Find the arc length of the graph of $y = \frac{x^3}{6} + \frac{1}{2x}$ on the interval $[\frac{1}{2}, 2]$.

5. (20%) Find the area of the surface formed by revolving the graph of $y = x^2$ on the interval $[0, \sqrt{2}]$ about the y -axis.