

MATH141(0332/0342) Calculus II

Worksheet 1, September 1-3, 2009

Name: _____

This discussion material helps you to get a deeply understanding on how to calculate volume using integral.

1. (*2 points*) Let $f(x) = 2x^2$. Find the area of the region **R** between the graph of f and the x -axis on the interval $[0, 1]$.

2. (*4 points*) Find the volume V_1 of the solid whose base is **R** (The same **R** as problem 1), and each cross-section perpendicular to the x -axis is a solid square.

3. (*4 points*) Find the volume V_2 of the solid obtained by revolving the region **R** about the x -axis.

4. (*5 points*) Let $f(x) = 2x^2$. **R** is the region between the graph of f and the x axis on the interval $[0, 1]$. Find the volume V_3 of the solid obtained by revolving the region **R** about the y -axis.

5. (*5 points*) Find the volume V_4 of the solid obtained by revolving the region **R** about the line $y = -1$.