Chapter 7.3 Worksheet

	Rate your understanding of the objective						
Objective 1	Understand how to find a volume by	1	2	3	4	5	
	integrating the area of a cross section.						
Objective 2	Calculate solids of revolution with the	1	2	3	4	5	
	shell method.						

Warmup

Write, but do not evaluate, an expression that finds the volume formed by revolving these regions around the y-axis. (By yourself)

- 1. The region under the curve $y = \sin(x) + 1$ and before the line $x = 2\pi$.
- 2. The region under the curve $y = e^{\frac{x}{2}}$ and before the line x = 2.
- 3. The region under the curve $y = -x^2 + 4x + 5$ and before the line x = 5.

Problems

These problems involve the shell method. Be sure to solve by integrating the area of a cylinder over the radius of the solid. You may reference Examples 209 through 212 in your example packet. (In groups)

- 1. Find the volume of a solid formed by revolving the curves $y = \sin(x) + x$ and $y = \sin(x) + 0.5 \cdot x$ around the y-axis, bounded by x = 0 and $x = 2\pi$.
- 2. Consider the region between the curves $y = x^2$, x = 1 and $y = -x^2$. Find the volume of the solid formed by revolving this region about the following lines.

(a)
$$y = 0$$
 (b) $x = 0$ (c) $x = 1$ (d) $y = 1$ (e) $x = 2$ (f) $y = 2$ (g) $y = -1$

Self Quiz

(By yourself)

1. Take the region under the curve $x = -y^3 + 3y^2 - 4y + 4$ in the first quadrant. Find the volume of the solid formed by revolving this region about the x-axis.

Reflection

Objectives		Rate your understanding of the objective				
Objective 1	Understand how to find a volume by	1	2	3	4	5
Objective 2	integrating the area of a cross section. Calculate solids of revolution with the shell method.	1	2	3	4	5

Study Skills:

- Remember to read through examples from the book BEFORE your professor goes over the section in class.
- After class read through the examples in your notes from that day and try to do the problems yourself (without looking at your notes).
- After class read through the examples from the book in the section you JUST covered and make sure you understand them.