Chapter 7.3 Worksheet Name _____

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

Warmup

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

1. The region bounded by the curves $y = \sin(x) + 1$ and $x = 2\pi$.
2. The region bounded by the curves $y = e^{\frac{x}{2}}$ and $x = 2$.
3. The region bounded by the curves $y = -x^2 + 4x + 5$ and $x = 5$.

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 integral for 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 an integral for 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 integrating the area of a cross section.	1	2	3	4	5
Objective 2	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.