Chapter 7.1 Worksheet Name _____

	Objectives	Rate your understanding of the objective				
Objective 1	Express an area under a function on the coordinate plane as an integral	1	2	3	4	5
Objective 2	Divide regions into ones that can be expressed in terms of functions	1	2	3	4	5
Objective 3	Use both functions in terms of both x and y	1	2	3	4	5

Warm Up

Evaluate the following integrals. (By yourself)

1. $\int \frac{1}{x^2}\,dx$
2. $\int_0^5 3x^{2/3} + 6\sqrt{x} + 3\,dx$
3. $\int_{3\pi}^{6\pi} \cos(y)(\sin(y))^5\,dy$

Problems

These problems involve areas on the coordinate plane. You may reference Example 199 in your example packet. (In groups)

1. Find the area that is both below $y = \sqrt{x}$ and above $y = x^2$ on the xy-plane. Graph the region, and then write the curves as functions, and then use the intersection points as the limits of integration.
2. Find the area that is both below $y = \sqrt{x}$ and above $y = x^2$ on the xy-plane. (Note: this is the same area as above). Integrate with respect to dy instead of dx, as you did in problem #1.
3. Find the area bounded by the line $y = 2\pi$, the y axis, the curve $x = \sin(5y)$, and the x-axis.
4. Find the area of the region bounded by $y = -x^3 + 4x$ and $y = x^2 - 2x + 5$ from $x = 0$ to $x = 2$.
5. Find the area of the triangle formed by the points $(1, 2), (5, 1)$, and $(3, 6)$. Solve again by rewriting your integrands and limits to integrate with respect to the other variable.
6. Find the area of the trapezoid formed by the points $(0, 2)$, $(2, 0)$, $(2, 5)$, and $(0, 3)$. Check that the formula for the area produces the same result.
7. Solve the last problem using three integrals with respect to y.

Self Quiz

(By yourself)

1. Calculate the area bounded by the functions $y = 2x^2$ and $y = x^3$.
2. Solve the last problem using an integral with respect to y.

Reflection

Objectives		Rate your understanding of the objective				
Objective 1	Express an area under a function on the coordinate plane as an integral	1	2	3	4	5
Objective 2	Divide regions into ones that can be expressed in terms of functions	1	2	3	4	5
Objective 3	Use both functions in terms of both x and y	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.