Math 2414: **Calculus II**   *Homework*

Professor: Fred Khoury

1. Find the volume of the solid obtained by rotating the region bounded by $y = x^3$, $y = 8$, *and* $x = 0$ about the $y-axis$.

2. Find the volume of the solid obtained by rotating the region bounded by $y = x^2$, $y = x$ about the $x-axis$.

3. Find the volume of the solid obtained by rotating the region bounded by $y = x^2$, $y = x$ about the line $y = 2$.

4. Use Shell-method to find the volume of the solid obtained by rotating about the $x-axis$ the region under the curve $y = \sqrt{x}$ from 0 to 1.

5. Find the volume of the solid obtained by rotating the region bounded by $y = x - x^2$ and $y = 0$ about the line $x = 2$.

6. Find the volume of the resulting solid by *any method* for the region bounded by $y = -x^2 + 6x - 8$, $y = 0$, and rotate about the $y-axis$.

7. Find the volume of the resulting solid by *any method* for the region bounded by $y = -x^2 + 6x - 8$, $y = 0$, and rotate about the $x-axis$.

8. Find the volume of the resulting solid by *any method* for the region bounded by $x = (y - 3)^2$, $x = 4$, and rotate about $y = 1$.

1.	$\dfrac{96}{5}\pi$	3.	$\dfrac{8\pi}{15}$	5.	$\dfrac{\pi}{2}$	7.	$\dfrac{16}{15}\pi$
2.	$\dfrac{2\pi}{15}$	4.	$\dfrac{\pi}{2}$	6.	8π	8.	$\dfrac{128}{3}\pi$