## Calculus II

1. Find the area of the region bounded by $y=x^{3}+5, y=x-1, x=-2, x=2$
2. Find the volume of the solid formed by revolving the region bounded by the graph of $y=\sqrt[3]{2 x-1}, y=0, x=8$ about the $x$-axis using the disk method.
3. Find the volume of the solid by revolving the region bounded by the graphs of $y=\sqrt{x-2}, y=(x-2)^{2}$ about the $x$-axis using the washer method
4. Find the volume of the solid of revolution formed by revolving the region bounded by $y=x-x^{2}$ and the $x$-axis about the $y$-axis, using the shell method.
5. Find the arc length of the graph of the function over the indicated interval (setup the integral, simplify by getting rid of parenthesis but don't solve): $y=\sqrt{x}+2,[0,4]$

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6. Find the area of the surface formed by revolving the graph of $y=3 x$ on the interval $[0,5]$ about the $x$-axis.
7. A force of 10 pounds compresses a 20 -inch spring a total of 5 inches. how much work is done in compressing the spring 9 inches?
8. Find $M_{x}, M_{y},(\bar{x}, \bar{y})$ for the laminas of uniform density $\rho_{\text {bounded by the graphs of the equations }}$ $y=-x^{2}+4, y=0, x=0, x=2$
9. Find the fluid force on the vertical side of the tank, where the dimensions are given in feet. Assume that the tank is full of water and the weight-density of water is 62.4.

5

10. Sketch the region bounded by the graphs of the equations and determine the area of the region $y=x, y=x^{3}$

