Math 2320 - Test 1

Name:_____

1. Compute by using the definition of the integral

$$\int_0^5 2x + 1 \, dx$$

2. Compute the average value of $f(x) = x^2 + 1$ over the region $[0, 1]$

3. Assume $s(t) = \cos(t) - 6t^2$. And let $v(0) = 2$ and let $a(0) = 1$. Find $v(t)$ and $a(t)$. What is the velocity of the particle when $t = \pi$ seconds?

4. Find the area of the region $x = y^2$ and $y = x - 2$.

5. Rotate the region defined below around the y-axis and find the volume of the solid generated. The region is the defined as between the curves $y = e^{x^2}$, $x = 0$ and $y = 0$.

6. $\int (x+1)e^{x^2+2x}\,dx$

7. $\int (x+1)e^x \, dx$

8. $\int \sin(x)\cos^3(x)\,dx$

9. $\int \cos^2(x)\,dx$

Extra Credit Take Home: Go to the website and complete the polynomial worksheet.