

Analytic Geometry and Calculus I

Quiz 5.3

Due Tuesday

Name _____

Show all work necessary for your answers.

1. Compute the following definite integrals without using antiderivatives, but based only on the area they represent.

(1) $\int_{-6}^6 4 + \sqrt{36 - x^2} \, dx$

(b) $\int_{-1}^2 1 \, dx$

2. Given that $\int_{-1}^2 x^2 \, dx = 3$ and $\int_0^2 x^2 \, dx = 8/3$, find $\int_{-1}^0 x^2 \, dx$

3. Given that $\int_{-1}^2 x^2 \, dx = 3$ and $\int_{-1}^2 x \, dx = 3/2$, and $\int_{-1}^2 1 \, dx = 3$, compute $\int_{-1}^2 5x + 2 - x^2 \, dx$

4. Suppose that the velocity of an object along a line at time t is given by $v(t) = t^3 - t$. Find both the displacement and the total distance traveled from $t = -1$ to $t = 1$.

Analytic Geometry and Calculus I

Quiz 5.4

Due Wednesday

Name _____

1. Compute the following definite and indefinite integrals:

(a) $\int_0^{\pi/4} \frac{\sec(x)}{\cos(x)} dx.$

(b) $\int_1^e \frac{2x^2-3x+2}{x} dx.$

(c) $\int \frac{d}{dx}[x^2 + 1] dx$

2. Find the following:

(a) $\frac{d}{dx} \left[\int_0^x te^t dt \right]$

(b) $\frac{d}{dx} \left[\int_0^{x^3} te^t dt \right]$

(c) $\frac{d}{dx} \left[\int_{\ln(x)}^{x^3} te^t dt \right]$