Calculus Section 4.4 1st Fundamental Theorem of Calculus  
-Evaluate a definite integral using the Fundamental Theorem of Calculus

Homework: page 288 #’s 5-13 odd, 25-37 odd 103, 104, 111, 112

**The First Fundamental Theorem of Calculus**  
If a function *f* is continuous on the closed interval [a, b] and *F* is an antiderivative of *f* on the interval [a, b], then:  
 

The 1st Fundamental Theorem of Calculus is used to determine the exact area under a curve (between the curve and the x-axis).

**Examples)**Evaluate each definite integral.

1)  2) 

3)  4) 

5)

Example)  
Determine the velocity of a particle at time t = 7 given that v(4) = 5 and a(t) = -sin(x2 + 1)