Calculus Section 4.1 Antiderivatives and Indefinite Integration  
-Write the general solution of a differential equation.  
-Use indefinite integral notation for antiderivatives.  
-Use basic integration rules to find antiderivatives.

Homework: page 255 #’s 11 – 23, 69, 72, 73, 74

**Antiderivatives**A function f(x) is an **antiderivative** of *g(x)* if f ‘(x) = g(x) for all x.

**Example)**If f(x) = 3x2, what is the antiderivative of f(x)?

The antiderivative for the function f(x) is just **an** antiderivative not **the** antiderivative. There can be infinitely many antiderivatives for any function f(x).  
**Example)**What is the antiderivative of f(x) = 4x3?

\*\*\*\*\*\*\*\*The antiderivative **MUST** have a +C, the **constant of integration**.\*\*\*\*\*\*\*\*

The operation of finding the antiderivative is called **antidifferentiation** or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Basic Integration Rules** (other examples found on p. 246 and inside the front cover of the book)

**Examples)**Integrate the following functions to find the antiderivative.

1)  2) 

3)  4) 

5)  6) 