

## 5.3 – Indefinite Integrals

Recall that the definite integral produces the net, signed area bounded by a curve and the  $x$ -axis over a specified interval.

The indefinite integral produces a function that is the *antiderivative* of the integrand.

Simple Example:  $\int \sec^2 x \, dx = \tan x + C$  (Why the  $+C$ ?)

At this point, you are responsible for knowing integrals 2 – 11 from the back flap of your textbook. We will eventually add 12, 13, 16, and 17 as well.

Find the following indefinite integrals.

1.  $\int (4x^5 - \sin x + 9) \, dx$

2.  $\int \left( \frac{1}{x^3} - \frac{4}{\sqrt[3]{x}} \right) \, dx$

$$3. \int (\sec \theta \tan \theta - 3e^\theta) d\theta$$

$$4. \int \frac{5x^2 - 2x - 4}{x^2} dx$$