## Indefinite Integrals

1. For each, classify the answer as a family of functions or a number and then find it.

$$\int \frac{1}{5} - \frac{2}{x} dx \qquad \qquad \int_{0}^{1} e^{2} - 2^{u} du \qquad \qquad \int \frac{t^{6} - t^{4} + 2t}{t^{4}} dt$$

- 2. A honeybee population starts with 100 bees and increases at a rate of n'(t) bees per week. What does  $100 + \int_0^{15} n'(t) dt$  represent?
- 3. The velocity function (in meters per second) is given for a particle moving along a line by the function v(t) = 3t 5.

(a) What are the units of  $\int_0^3 v(t) dt$ ?

(b) Find the net change (displacement) between 0 and 3 seconds.

(c) Find the total distance traveled between 0 and 3 seconds.

## The Other FTC



- (d) Collect enough points to sketch a graph of G
- 2. For each function F defined below, find F'.

$$F(x) = \int_{3}^{x} 2t - 2^{t} \ln(2) dt \qquad \qquad F(x) = \int_{0}^{\tan(x)} \sqrt{t + \sqrt{t}} dt$$