(Basic!) Antiderivatives

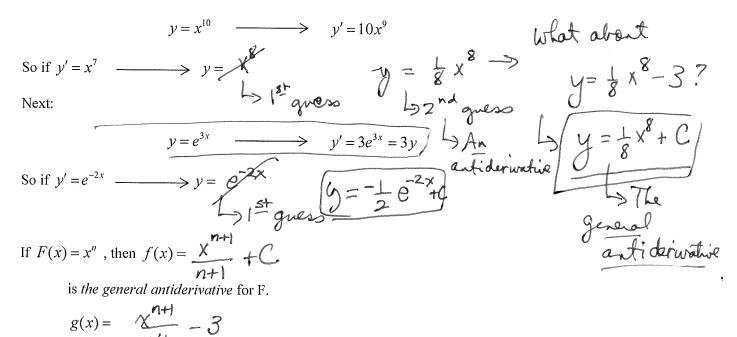
We know that if $f(x) = 3x^2 + 2x - 4$ then f'(x) = 6x + 2.

What if we are given a function and asked whether it is the derivative of some function and (if so) what function that might be?

Example: Suppose y' = 5x + 1, what can we say about y?

$$y = \frac{5}{2}x^2 + x + C$$
 How did I know this?

Let's think about differentiating for a moment . . .



is a particular antiderivative for F.

If
$$F(x) = e^{ax}$$
, then $f(x) = \frac{1}{a}e^{ax} + C$