$$\frac{d}{dx}\left[\frac{x^{n+1}}{n+1}+c\right] = \frac{\cancelto{1}{(n+1)}\,x^{n}}{\cancel{n+1}} + 0 = x^{n}$$ *

So this is going to be equal to-- well, the derivative of x to the n plus 1 over n plus 1, we can just use the power rule over here.

$$\frac{d}{dx}\left[\frac{x^{n+1}}{n+1}+c\right] =$$

So our exponent is n plus 1. We can bring it out front. So it's going to be n plus 1 times x to the-- I want to use that same color.

$$\frac{d}{dx}\left[\frac{x^{n+1}}{n+1}+c\right] = (n+1)x^{n}$$

Colors are the hard part-- times x to the-- instead of n plus 1, we subtract 1 from the exponent. This is just the power rule. So n plus 1 minus 1 is going to be n. And then we can't forget that we were dividing by this n plus 1.

$$\frac{d}{dx}\left[\frac{x^{n+1}}{n+1}+c\right] = \frac{(n+1)x^{n}}{n+1} + 0$$

So we have divided by n plus 1. And then we have plus c. The derivative of a constant with respect to x-- a constant does not change as x changes, so it is just going to be 0, so plus 0. And since n is not equal to negative 1, we know that this is going to be defined.

$$\frac{d}{dx}\left[\frac{x^{n+1}}{n+1}+c\right] = \frac{\cancelto{1}{(n+1)}\,x^{n}}{\cancel{n+1}} + 0 = x^{n}$$

This is just going to be something divided by itself, which is just going to be 1. And this whole thing simplifies to x to the n.