Day #8: Mathematical environments

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1   Mathematical Environments

We have probably encountered math content with certain kinds of labels, for example,

- definition

- theorem

- proof

- lemma

- corollary

- example

- named equations, formulas

- figure (but we've handled this separately, along with tables)

2   Examples of Mathematical Environments

2.1   Examples of Definitions

Definition 2.1.1 (antiderivative). *A function F is called an* antiderivative *of a function f on a given open interval if $F'(x) = f(x)$ for x in the interval.*

Definition 2.1.2 (your choice). *Write your own definition of a concept of* your choice.

2.2   Examples of Theorems and Proofs

In this unit, we discuss the rules for derivatives. We begin with the *power rule for derivatives* in Theorem 2.2.1.

Theorem 2.2.1 (Power rule for derivatives). If n is a positive integer, then

$$\frac{d}{dx}(x^n) = nx^{n-1}.$$

Proof. If we had more time, we could prove this using a combination of the binomial theorem and the limit definition of the derivative.   *Q.E.D.*