Lecture on Jul. 31st, 2017: Introduction to Differential Equations

1 Warm-up Practice

- Find the Taylor series at 0 for (A) $f(x) = \frac{1}{2}\ln(\frac{1+x}{1-x})$ and (B) $f(x)$ satisfying $f'(x) = \frac{1}{1+x^2}$ and $f(0) = 0$.

2 Basic Concepts of differential equations

- Definition of a differential equation.
- Definition of the order of a differential equation.
- Definitions of the general and particular solution to a differential equation.
- Definition of the slope field of a differential equation.
- Definition of the initial condition of a differential equation.
- Explicit and implicit solutions to a differential equation.