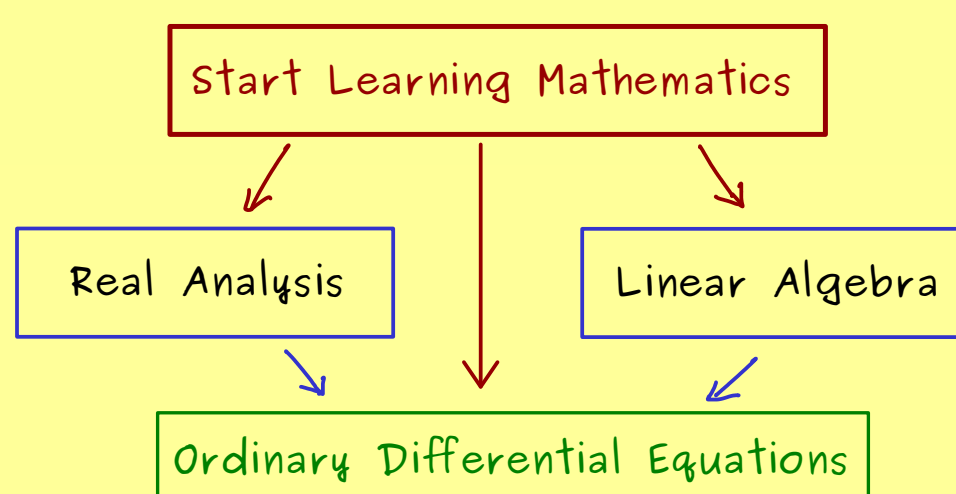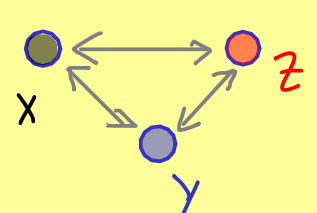The Bright Side of
Mathematics

Ordinary Differential Equations – Part 1

$$f' = f \quad \longleftarrow \quad \text{search for a function } f$$
that satisfies this?

$$f(x) = e^x$$

Start Learning Mathematics

Real Analysis

Linear Algebra

Ordinary Differential Equations

Other examples: (a) $\ddot{x} = -\omega^2 x$ (harmonic oscillator)

(second order derivatives)

(b)

$$m \cdot \ddot{x} = F$$
$$m \cdot \ddot{y} = F$$
$$m \cdot \ddot{z} = F$$

system of differential equations

Topics:
- system of ordinary differential equations (ODE)
- solution methods
- existence and uniqueness of solutions
- linear ordinary differential equations (matrix exponential function)