# Classification of points

* + For the 2nd order DE of form:
  + If is an ordinary point
    - Power series solution applies
  + is a singular point if or are undefined
    - is an regular singular point if
      * If and exist
    - Irregular singular point if they do not exist
    - Frobenius series solution for regular singular points

# Bessel's equation

# Bessel’s function

* + When is an integer
* Linear systems of DE’s

## Eigen-stuff

* + - Find and
    - If are real
      * Unbounded solutions
    - If are complex
      * Periodic solutions

## Hamiltonian

* + - Equilibrium point
      * and
    - For linear systems: