MA108: Ordinary Differential Equations

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1 Lecture 1: Introduction

- Ordinary DEs mean those not involving Partial Deriavatives

- Can Solutions be expressed in a nice form? : Can we have a few linearly independent solutions which together span the space of all solutions?

- What combinations of the basic solutions of the form:

$$a_n(x)y^{(n)} + a_{n-1}y^{(n-1)}....a_0y = b(x)$$
will also be a solution?

2 Lecture 2: Seperable and Homogenous Equations

- At each point (a, b) if we define a vector field, $H : D \to R^2$ given by

$$H(x, y) = (1, f(a, b))$$

provided $\frac{dy}{dx} = f(x, y)$

In this case, What can you do to find a solution curve provided this plotting of the said vector field?

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