

The University of Zambia  
Department of Mathematics and Statistics  
Mat 3110-Engineering Mathematics II

**Assignment 1- Submit by Friday, 19th March, 2021.**

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Find a power series solution to the following ordinary differential equations in powers of  $x$ .

1.  $(1 - x^2)y'' - 2xy' + 2y = 0$ .
2.  $y'' + (1 + x^2)y = 0$ .
3.  $y'' - 4xy' + (4x^2 - 2)y = 0$ .