MENYELESAIKAN PERSAMAAN DIFERENSIAL OSILATOR NON LINEAR DENGAN METODE KRYLOV –BOGOLIUBOV

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ABSTRACT: During a century and half of development and refinement of techniques, calculus consisted of these paired operations and their applications, primarily to physical problems. Newton's theory of "fluxions", which was based on an intuitive idea of limit, would be familiar to any modern student of differential calculus once some changes in therminology and notation were made. But the vital observation, made by Newton and, independently, by Gottfried Leibniz, was that areas under curves could be calculated by reversing the differentiation process. The exciting technique, one that solved previously difficult area problems with ease, sparked enormous interest among the mathematicians of the era and led to a coherent theory that became known as the differential and integral calculus.

This paper will develop the theory of diffentiation. We will assume that the reader is already familiar with the physical interpretations of derivative of a function as described in introductory calculus courses. Consequently, we will concentrate on the mathematical aspects of the derivative and the applications in physics. The first section is devoted to a presentation of the basic form of non-linear differential equations. A discussion of Krylov-Bogoliubov Method is also given. The material is of the greatest importance because this method can determine solution of non-linear differential equations.

Keywords : Persamaan Diferensial Non Linear, Krylov –Bogoliubov