ABSTRACT

RESOLVING nth-ORDER NON HOMOGENEOUS LINEAR DIFFERENTIAL EQUATION WITH GREEN FUNCTION

By

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This research will present how to solve nth-order non homogeneous linear differential equation by using green function through Laplace transformation. The general solution of nth-order non homogeneous linear differential equation includes homogeneous solution and non homogeneous solution. Non homogeneous solution is also known as particular solution. From the particular solution, here after it could be solved by using green function through Laplace transformation. Based on this research, we later obtained that nth-order non homogeneous linear differential equation can be solved using green function through Laplace transformation. The general solution obtained was:

$$y(x) = y_h(x) + \int_0^x f(t).w(x - t)dt$$

Keywords: nth-order non homogeneous linear differential equation, green function, laplace transformation

ABSTRAK

**MENYELESAIKAN PERSAMAAN DIFERENSIAL LINEAR ORDE-*n*
NON HOMOGEN DENGAN FUNGSI GREEN**

Oleh

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Dalam penelitian ini akan disajikan bagaimana menyelesaikan persamaan diferensial linear orde-*n* non homogen dengan fungsi Green melalui transformasi Laplace. Solusi umum dari persamaan diferensial linear orde-*n* non homogen terdiri dari solusi homogen dan solusi non homogen. Solusi non homogen sering juga disebut solusi partikulir. Selanjutnya dari solusi partikulir ini dapat diselesaikan dengan fungsi Green melalui transformasi Laplace. Berdasarkan hasil penelitian ini, didapat bahwa persamaan diferensial linear orde-*n* non homogen dapat diselesaikan dengan fungsi Green melalui transformasi Laplace. Solusi umum yang diperoleh yaitu:

$$y(x) = y_h(x) + \int\limits_0^x f(t).w(x-t)dt$$

Kata Kunci: persamaan diferensial linear orde-*n* non homogen, fungsi green,

transformasi laplace