PENENTUAN ANULUS SEBAGAI LOKASI LIMIT CYCLE PADA BIDANG PHASE DARI PERSAMAAN VAN DER POL

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ABSTRACT

In this research, we presented a study on determining the annulus as the location of the limit cycle in the phase plane of the van der Pol equation. We assume that the parameter of the nonlinear term is relatively small (), then the problem investigated is a weakly nonlinear case.

The existence of the limit cycle solution in the van der Pol equation has been guaranteed in many references. However, it is difficult to determine analytically. In this study, the solution has been approached using the perturbation method. This method is quite powerful in the case of weakly nonlinear. The limit cycle approximation solutions show that a minimum limit of the circumcircle and a maximum limit of the incircle of the limit cycle is made to obtain an annulus in the form of a disk centred at the origin (critical point).

Kata Kunci: *limit cycle, van der Pool, annulus disk*