A THEOREM OF DIVISION WITH A REMAINDER IN A SET OF POLYNOMIALS WITH SEVERAL VARIABLES

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Abstract. The set of polynomials of several variables with coefficients in factorial ring (such as the integers ring) has not provided a structure of Euclidean ring and implicitly do not permit Euclid algorithm to perform the greatest common divisor of two or more polynomials.

In this work is performed a division theorem with a remainder in the set of polynomials of several variables with coefficients in a factorial ring.

This theorem underline the possibility to do a new definition of Euclidean ring and a new algorithm to perform the greatest common divisor of two or more polynomials of several variables.

The algorithm for performing the greatest common divisor of polynomials with several variables may be used to determine an analytical inverse matrix for a matrix of such polynomials that intervene in a mathematical modeling of mechanical phenomena.

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