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Aghalaya S Vatsala* (vatsala@louisiana.edu), Department of Mathematics, University of Louisiana at Lafayette, Lafayette, LA 70504, and **Bhuvanewari Sambandham**, department of Mathematics, University of Louisiana at Lafayette, Lafayette, LA 70504. *Some Basic Results of Caputo Fractional Differential Equations*. Preliminary report.

We have developed some basic results for fractional differential equations of order q and $2q$, when $0 < q < 1$. We have obtained a symbolic closed form of the solution for Caputo initial value problem of order q , when $0 < q < 1$, such that the classical result for $q = 1$ will be a special case. We bring in the salient difference between the oscillatory solutions obtained using the Mittag-Leffler function and the oscillatory solutions of ordinary differential equations. As a byproduct some new properties of Mittag-leffler functions are also established which is useful in applications. Several numerical results are presented. (Received September 11, 2014)