Formulas that we will solve using our algorithms :

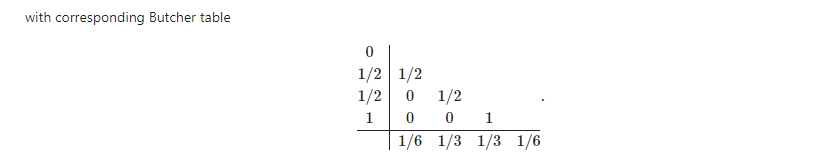
The equation of motion only with gravity:

Equation of motion with gravity and corrections for additional forces

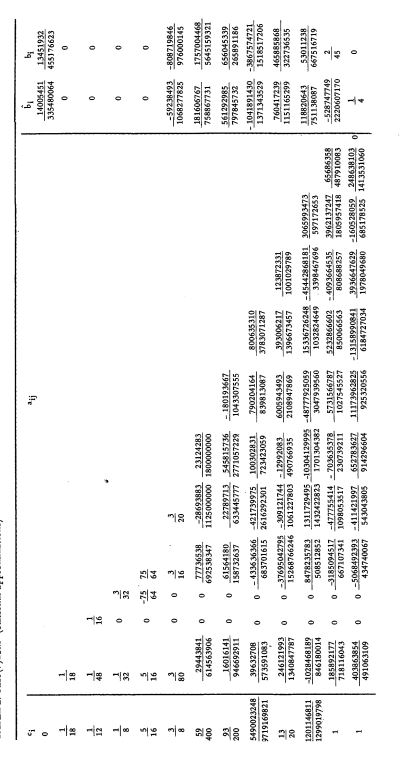
Where is the acceleration due to friction and It is the acceleration resulting from the Earth's motion

Mathematical Functions for RK4,RK8,ODE45

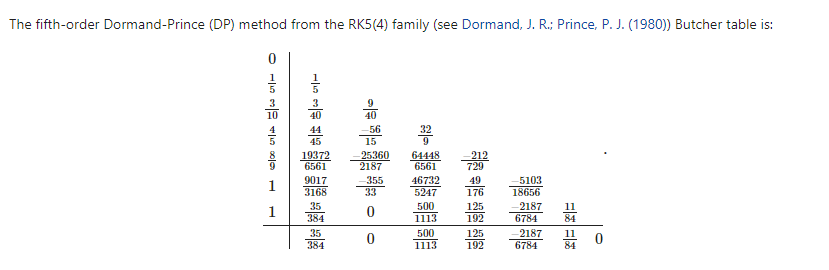
**RK4**



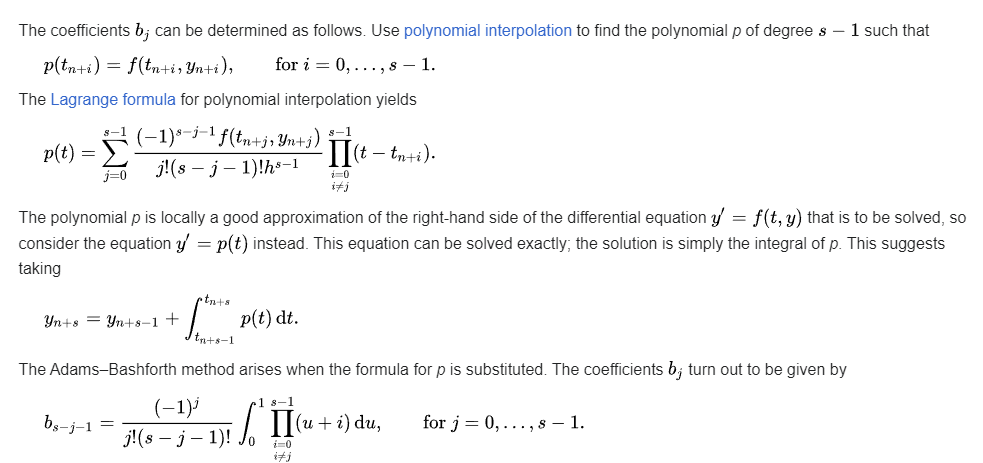
**RK8**



**ODE45**



**ODE113**  
 In general, a method of order s can be stated as

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