

3. Runge-Kutta Tableaux

1. Consider the one-step method

$$y^{n+1} = y^n + \frac{1}{4}hf(y^n, t_n) + \frac{3}{4}hf\left(y^n + \frac{2}{3}hf(y^n, t_n), t_n + \frac{2}{3}h\right)$$

Find the corresponding Butcher tableau.

2. Consider the Butcher tableau

0				
1/3	1/3			
2/3	-1/3	1		
1	1	-1	1	
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	1/8	3/8	3/8	1/8

Write down the corresponding numerical method.