

Higher Order RK

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7:23 PM

$$\dot{x} = f(t, x) \quad \left. \vphantom{\dot{x} = f(t, x)} \right\} \text{similar idea}$$

$$k_1 = \Delta t f(t_n, y_n)$$

$$k_2 = \Delta t f\left(t_n + \frac{\Delta t}{2}, y_n + \frac{k_1}{2}\right)$$

$$k_3 = \Delta t f\left(t_n + \frac{\Delta t}{2}, y_n + \frac{k_2}{2}\right)$$

$$k_4 = \Delta t f(t_n + \Delta t, y_n + k_3)$$

$$y_{n+1} = y_n + \frac{k_1}{6} + \frac{k_2}{3} + \frac{k_3}{3} + \frac{k_4}{6}$$