

4

$$U_{n+1} = U_n + \frac{h}{6} (k_1 + 2k_2 + 2k_3 + k_4)$$

$$U_1 = U_0 + \frac{h}{6} \left(-\sin(U_0) - 2\sin(U_0 - \frac{h}{2}\sin(U_0)) - \dots \right)$$

$$\dots - 2\sin\left(U_0 - \frac{h}{2}\left(\sin\left(U_0 - \frac{h}{2}\left(\sin(U_0)\right)\right)\right) - \dots \right)$$

$$\dots - 2\sin\left(U_0 - \frac{h}{2}\left(\sin\left(U_0 - \frac{h}{2}\sin\left(U_0 - \frac{h}{2}\sin(U_0)\right)\right)\right) - \dots \right)$$

$$\dots - \sin\left(U_0 - \frac{h}{2}\sin\left(U_0 - \frac{h}{2}\sin\left(U_0 - \frac{h}{2}\sin\left(U_0 - \frac{h}{2}\sin(U_0)\right)\right)\right)\right)$$

$$= 0$$

$$y'(1) \approx U_{n+1}(1) \approx 0.94956$$