

Problem 10

In each of Problems 9 and 10, let $\phi_0(t) = 0$ and use the method of successive approximations to approximate the solution of the given initial value problem.

- (a) Calculate $\phi_1(t), \dots, \phi_3(t)$.
- (b) Plot $\phi_1(t), \dots, \phi_3(t)$ and observe whether the iterates appear to be converging.

$$y' = 1 - y^3, \quad y(0) = 0$$