

Problem 11

In each of Problems 11 and 12, let $\phi_0(t) = 0$ and use the method of successive approximations to approximate the solution of the given initial value problem.

- (a) Calculate $\phi_1(t), \dots, \phi_4(t)$, or (if necessary) Taylor approximations to these iterates. Keep terms up to order six.
- (b) Plot the functions you found in part (a) and observe whether they appear to be converging.

$$y' = -\sin y + 1, \quad y(0) = 0$$