

Show all work. Your answers must be fully justified. You may leave your solutions in implicit form.

1. Solve the initial value problem:

$$\frac{dy}{dt} = 6 - 3y, \quad y(0) = -1$$

2. Solve the initial value problem:

$$\frac{dy}{dt} + 2ty = 2te^{-t^2}, \quad y(0) = 4$$