

Part One: *Quick and Easy...*

1. Find the solution to the differential equation $\frac{dy}{dt} = 3t^2y + 18e^{t^3}$ satisfying $y(0) = 2$.

2. Find, using power series, the general solution to the differential equation $\frac{dy}{dt} = 2y + t$.

Part Two: A Look Back...

For the differential equation $\frac{dy}{dt} = ty - t$ with $y(0) = 0$:

1. Draw the slope field.
2. Estimate $y(2)$ using Euler's Method with $\Delta t = 1/2$.
3. Find the solution using separation of variables.
4. Find the solution using guess-and-check.
5. Find the solution using integrating factors.
6. Find the solution using power series.