

- Compute the exact solution to the initial-value problem

$$\frac{dy}{dt} = \frac{y^2}{t^3}, \quad y(1) = 2, \quad t \in [1, 4].$$

by hand using separation of variables (you can use the Wolfram site to check your answer). Be sure to show all work.

- Use MATLAB's `ode45` function to compute an approximate solution to the initial-value problem.
- Create a plot of the solution.
- Create a plot of the relative error in the solution.