

For each of the problems below, do the following:

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

You should hand in all your scripts and plots.

a) (5 pts) $y' = \frac{2t}{1+2y}$, $y(2) = 0$, $t \in [2, 10]$.

b) (5 pts) $r' = \frac{r^2}{\theta}$, $r(1) = 2$, $\theta \in [1, 1.5]$.