

Problem 8 is straightforward. You should use technology such as dfield or HPGSolver to do the plotting.

In Problem 24, combine parts a and b into a single plot; this can be done nicely using HPGSolver and its built-in step function

$$\text{step}(t) = \begin{cases} 0, & t < 0, \\ 1, & t > 0, \end{cases}$$

or dfield and its built-in signum function

$$\text{sign}(t) = \begin{cases} -1, & t < 0, \\ +1, & t > 0. \end{cases}$$

In particular, show the graphs of the solutions for the initial conditions  $p(0) = 1, 10, 20, 30, 40$ . In part c, find formulas only for the solution with the initial condition  $p(0) = 30$ . You may use Mathematica. In part d, describe the behavior only for the solution with the initial condition  $p(0) = 30$ . Be precise.