

## Problem 12

Problems 8 through 13 involve equations of the form  $dy/dt = f(y)$ . In each problem sketch the graph of  $f(y)$  versus  $y$ , determine the critical (equilibrium) points, and classify each one asymptotically stable, unstable, or semistable (see Problem 7). Draw the phase line, and sketch several graphs of solutions in the  $ty$ -plane.

$$dy/dt = y^2(4 - y^2), \quad -\infty < y_0 < \infty$$