

6. [15 points] Find real-valued solutions to each of the following, as indicated. Where possible, find explicit solutions.

a. [7 points] Find the general solution to the Gompertz equation,  $\frac{dy}{dt} = r y \ln\left(\frac{K}{y}\right)$ .

b. [8 points] Solve  $y' = 3t - \frac{t}{1+t^2} y$ , with  $y(0) = 3$ .