## New applications using old techniques

1. Read Gotelli, chapter 8, and do problem 8.1.

2. The graph below gives the growth curve $\frac{du}{dt}$ for a population given by u.
    a. Find the stable equilibrium and the threhold level (minimum viable population, an unstable equilibrium in this case) if there is a constant harvest level of 200.
    b. Find the stable equilibrium population and the harvest level if the harvest is maintained at 2% of the population.
    c. Find the maximal sustainable harvest and the population which supports this. What constant percentage harvest rate does this correspond to?
    d. The intrinsic rate of increase of the population is given by the slope of the tangent line to the graph at the origin. Estimate this value.
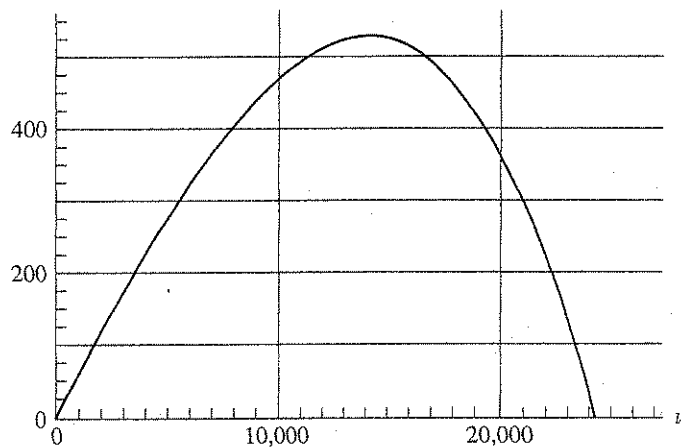
3. Answer the same questions as in 1 above for the following graph of $\frac{du}{dt}$.