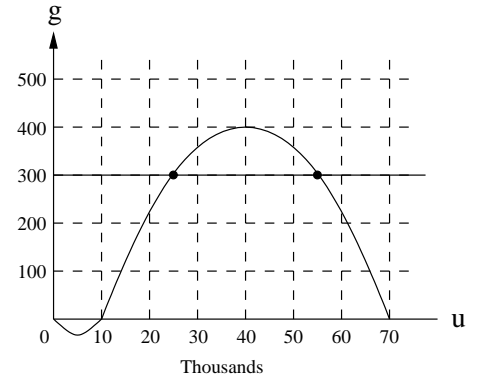


1.

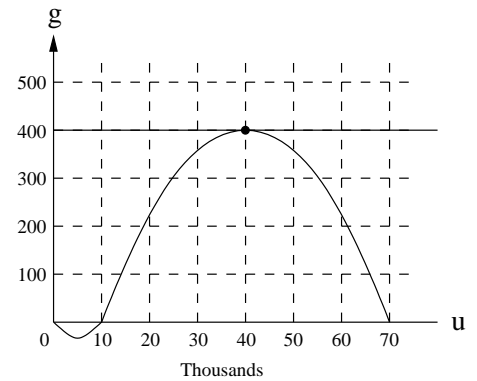
- (a) The stable equilibrium population is 50000.
- (b) The minimum viable population is 10000.
- (c) The eventual yearly harvest is 350.

2. (a) The stable equilibrium population is 55000.

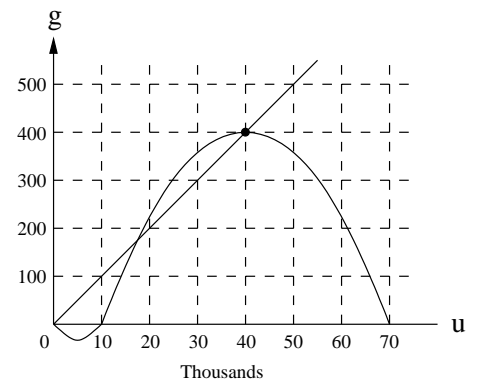
(b) The minimum viable population is 25000.



(c) The maximum constant sustainable harvest is 400 at an equilibrium population of 40000.



(d) Let h be the harvest. The line drawn goes through the points $(0, 0)$ and $(40000, 400)$ so has slope 0.01 and equation $h = 0.01u$. Thus we can maximize the sustainable harvest by harvesting 1% of the population.



(e) The line drawn goes through the points $(0, 0)$ and $(40000, 500)$ so has slope 0.0125. Thus the intrinsic growth rate is 1.25%.

