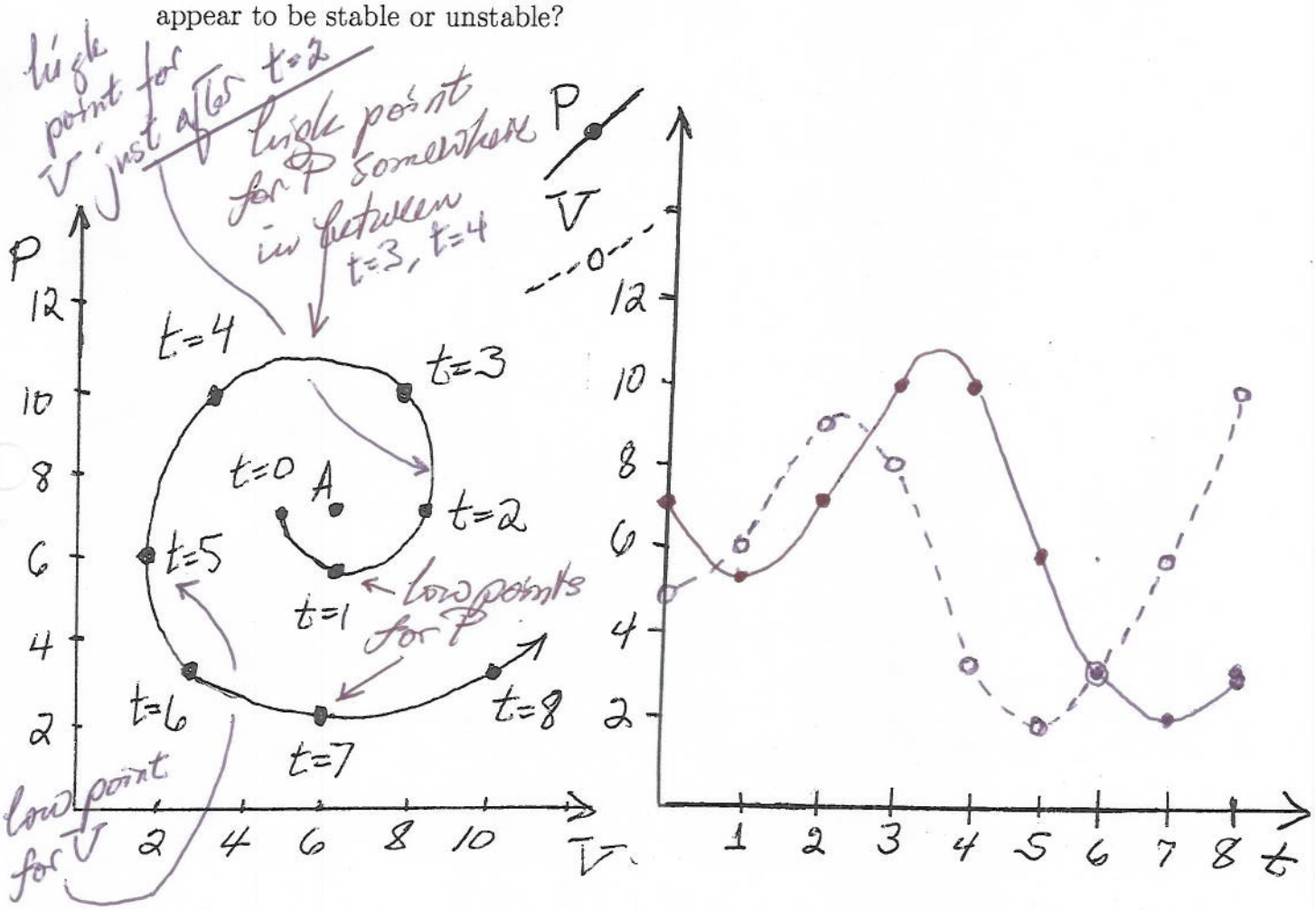
MATH 172 **Fall, 2009** **Quiz #8** **Name:** M2

For full credit you must show sufficient work to justify your answer.

1. Illustrated below is the phase portrait of a predator-prey system. The point A represents an equilibrium for this system. The initial populations at $t = 0$ start very close to A and follow the trajectory shown. Sketch, as accurately as you can, the time plots for each of the victim population V and the predator population P from $t = 0$ to $t = 8$; make sure it is clear which graph is which. Don't just connect the dots by straight lines; connect them smoothly by estimating what is happening at the in between times. Does this equilibrium appear to be stable or unstable?



t	0	1	2	3	4	5	6	7	8
V	5	6	8.5	8	3.5	2	3	6	10
P	7	5.5	7	10	10	6	3	2	3