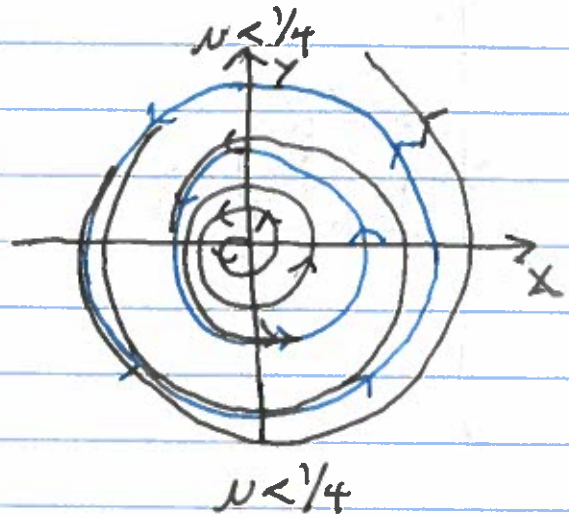
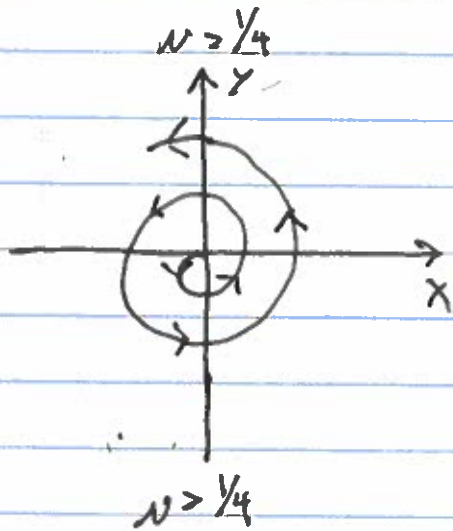
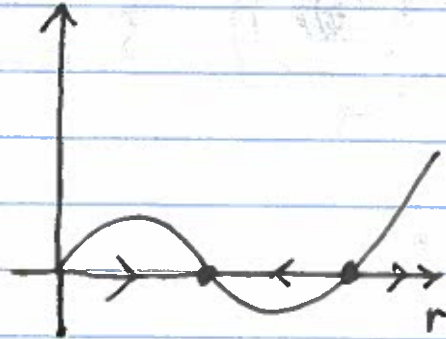
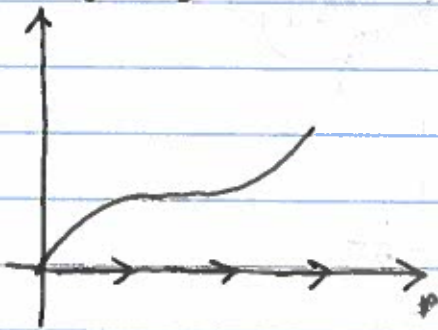


Lecture 21: Other Periodic Bifurcations.

1. Saddle-Cycle bifurcation:

$$\dot{r} = \nu r - r^3 + r^5 \rightarrow \text{quintic normal form}$$

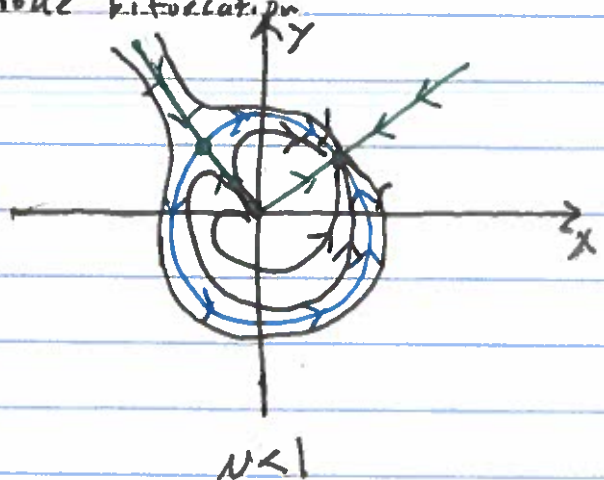
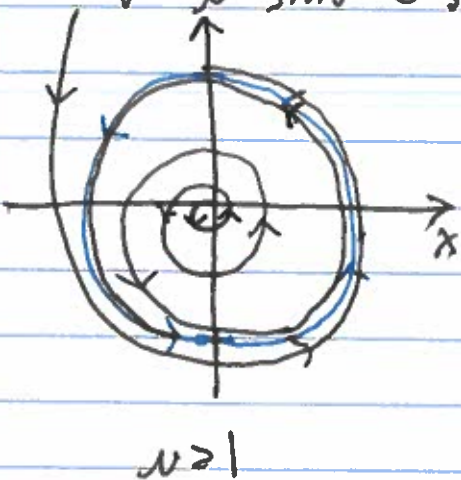
$$\dot{\theta} = \omega$$



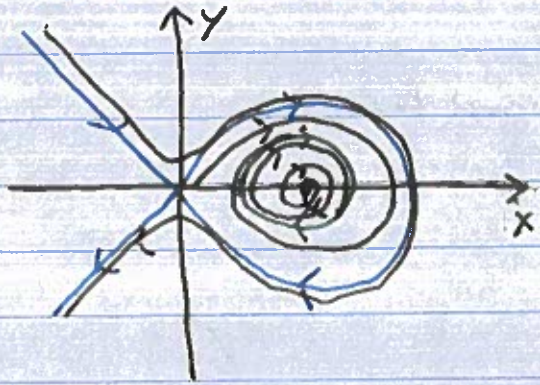
2. Infinite Periods

$$\dot{r} = r(1-r^2)$$

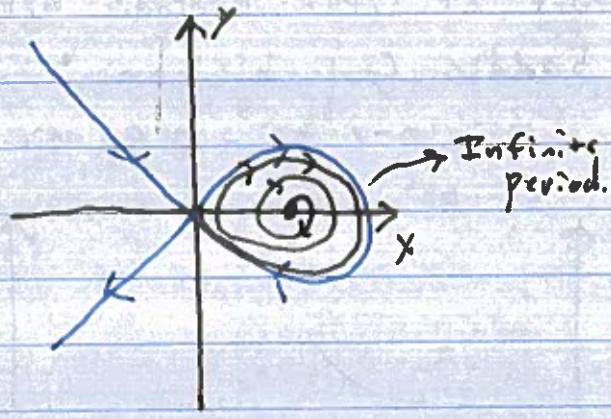
$$\dot{\theta} = \nu - \sin\theta \rightarrow \text{saddle node bifurcation}$$



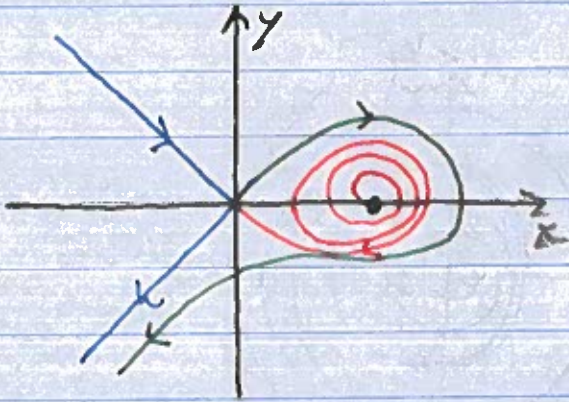
3. Homoclinic Bifurcation



$$N < N^*$$



$$N = N^*$$



$$N > N_c$$