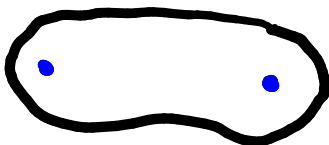


E_0



E_1



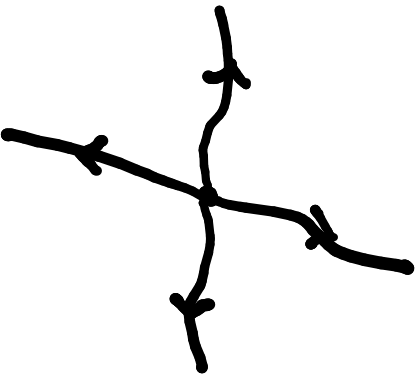
E_2



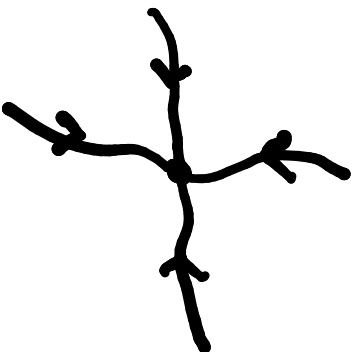
E_3



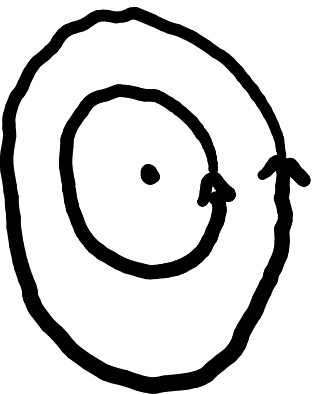
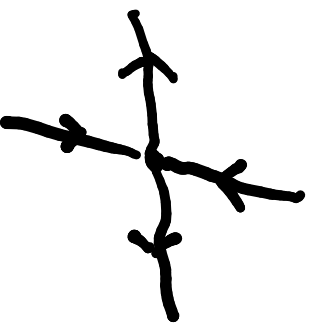
SOURCE



SINK

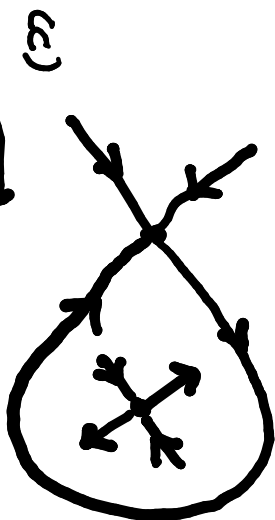


SADDLE

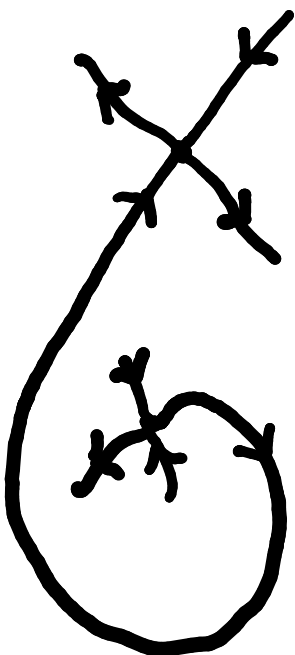


CENTER

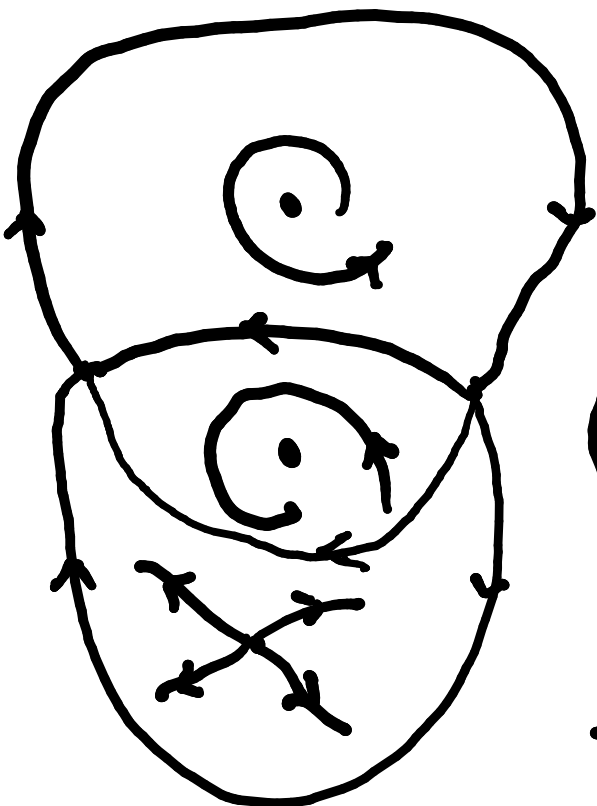
(a)



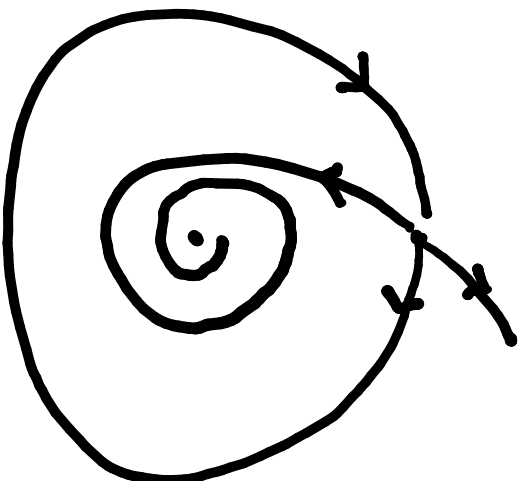
(b)

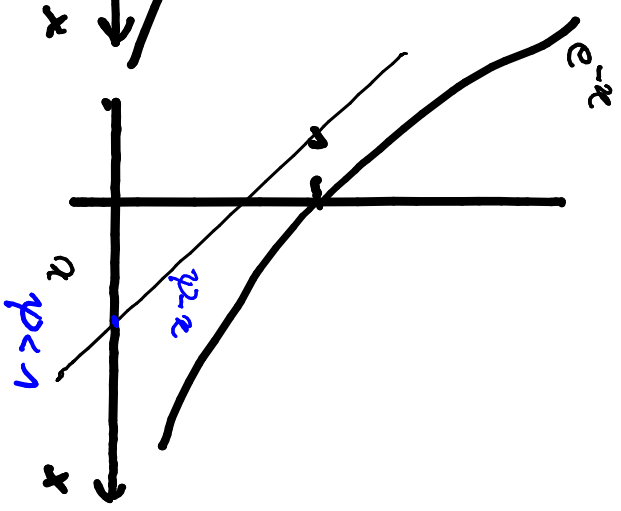
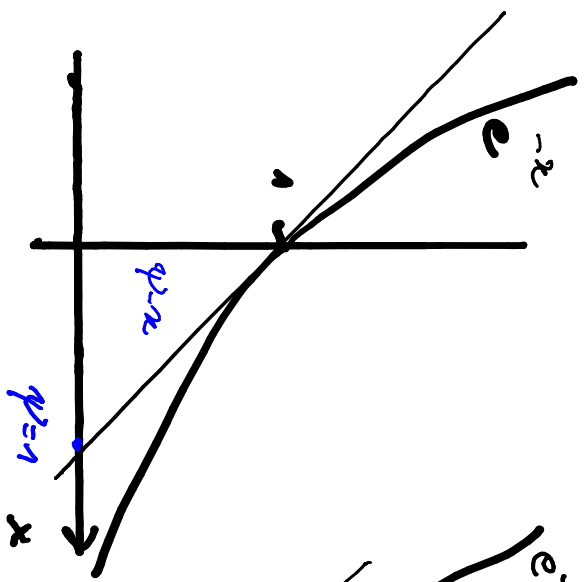
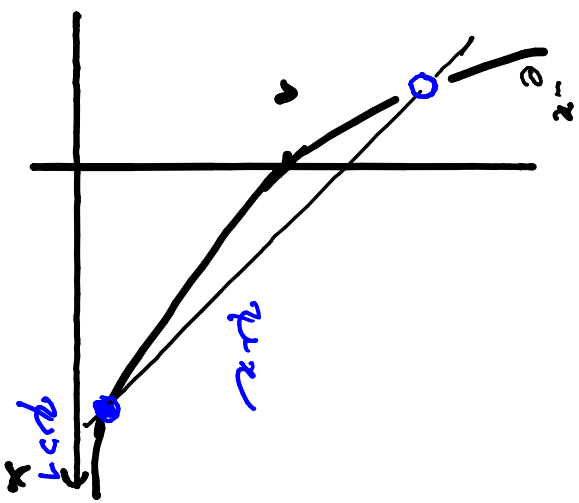


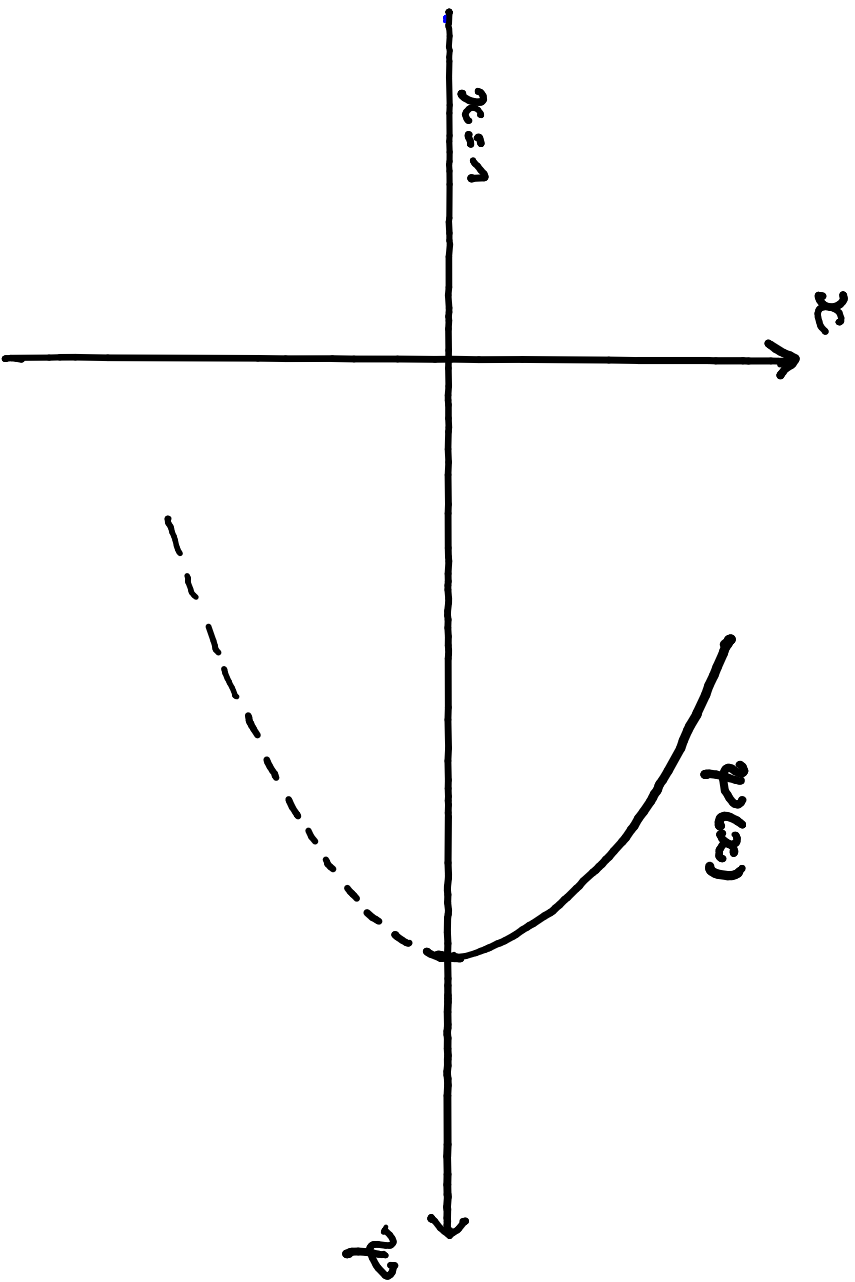
(c)



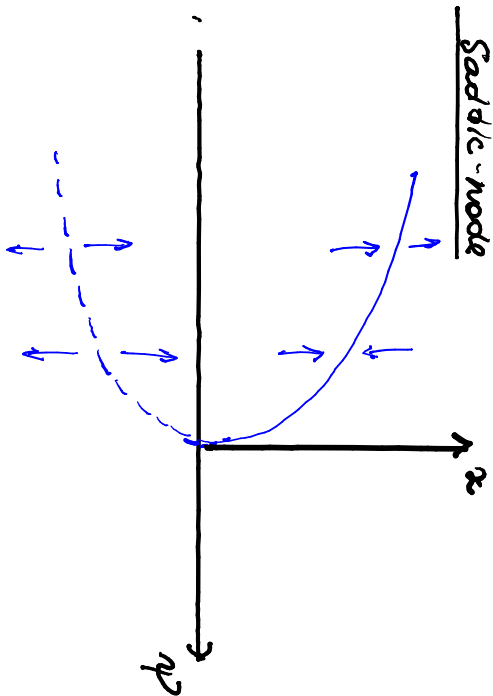
(d)





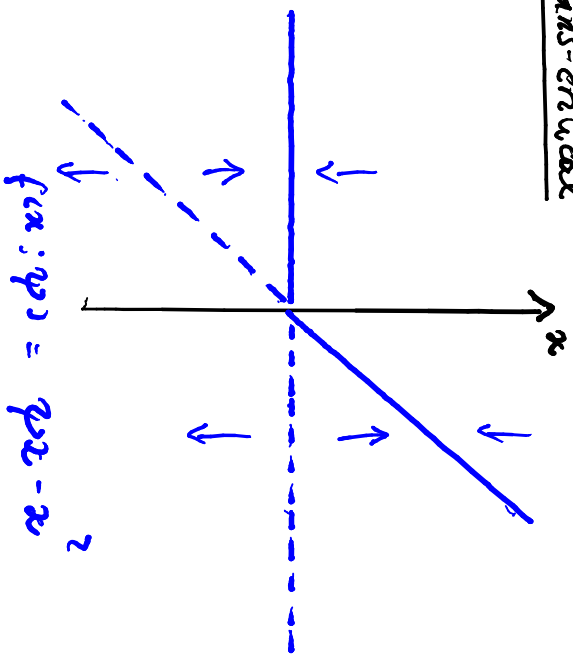


Saddle-node



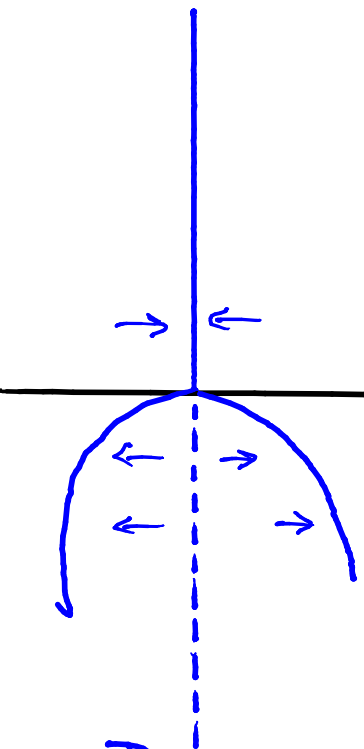
$$f(x; \eta p) = \eta p - \frac{1}{2}x^2$$

Trans-critical

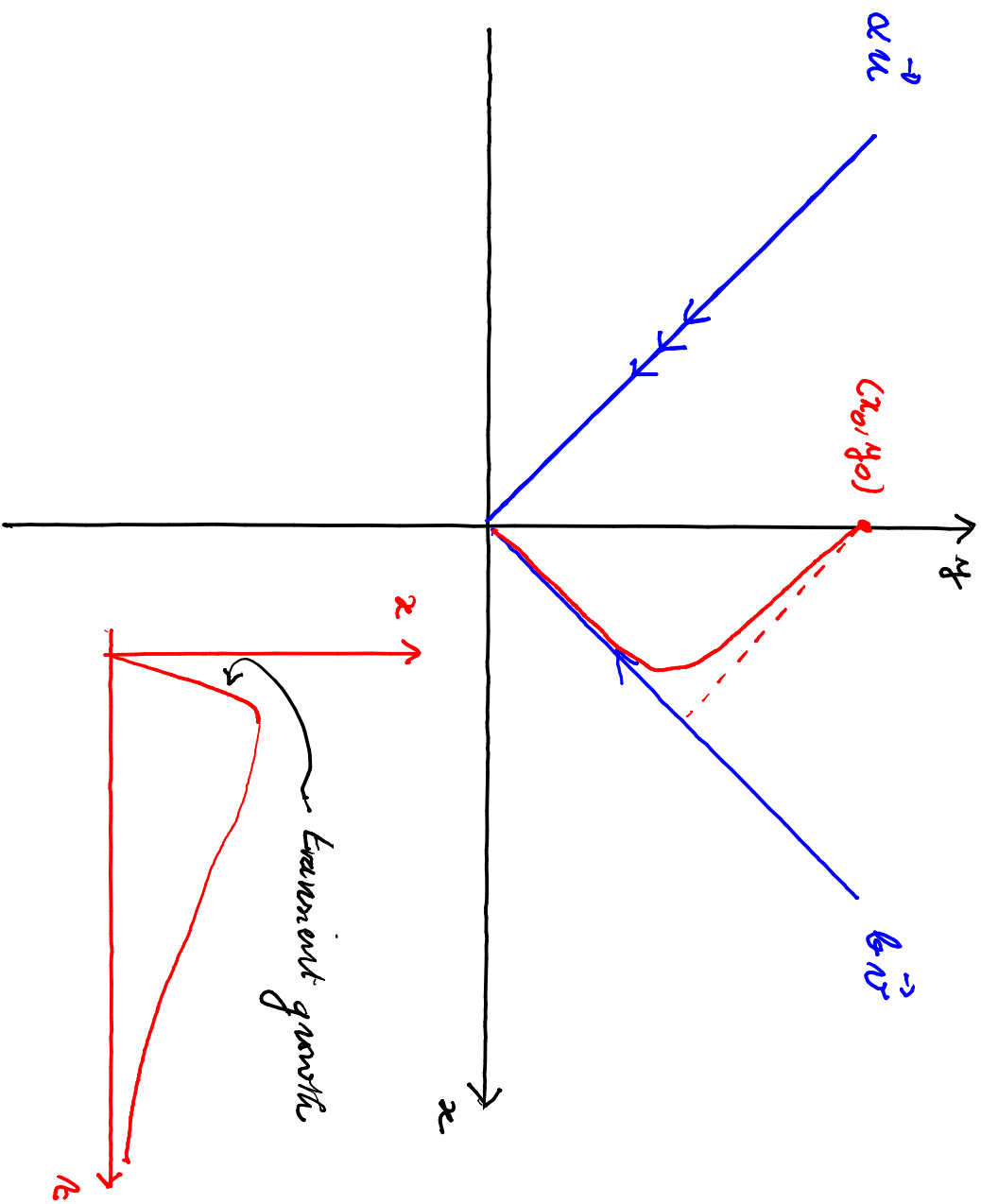


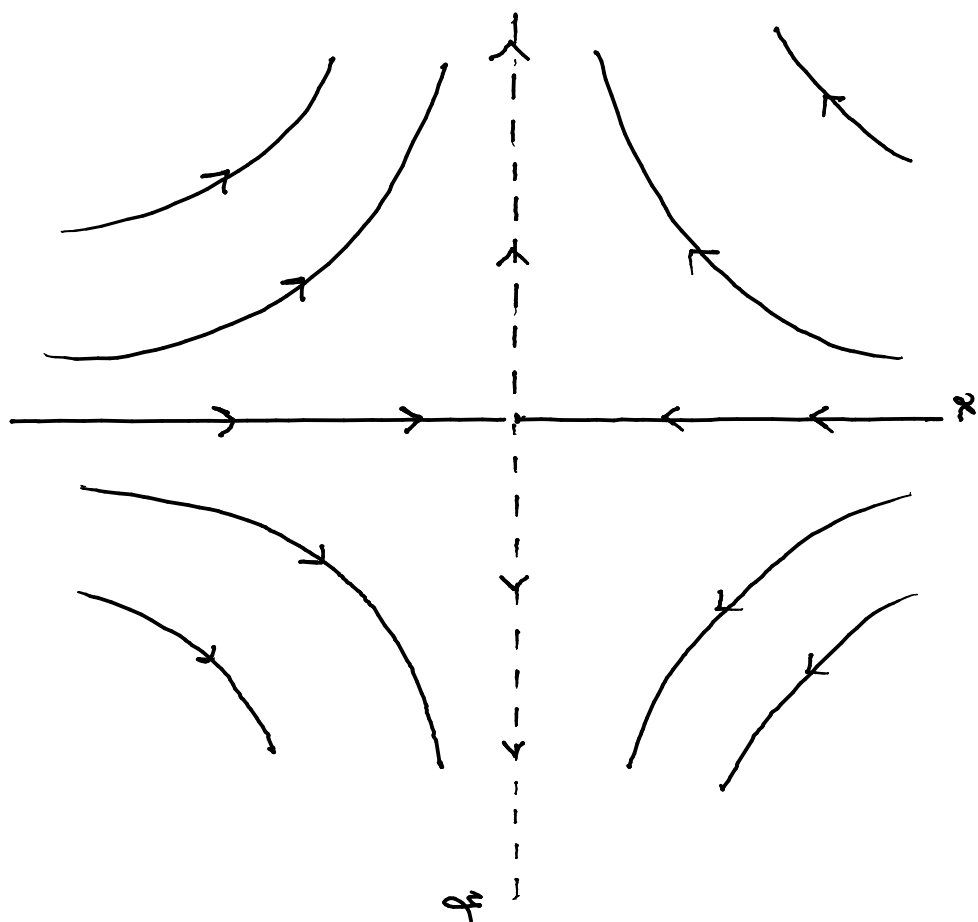
$$f(x; \eta p) = \eta p x - x^2$$

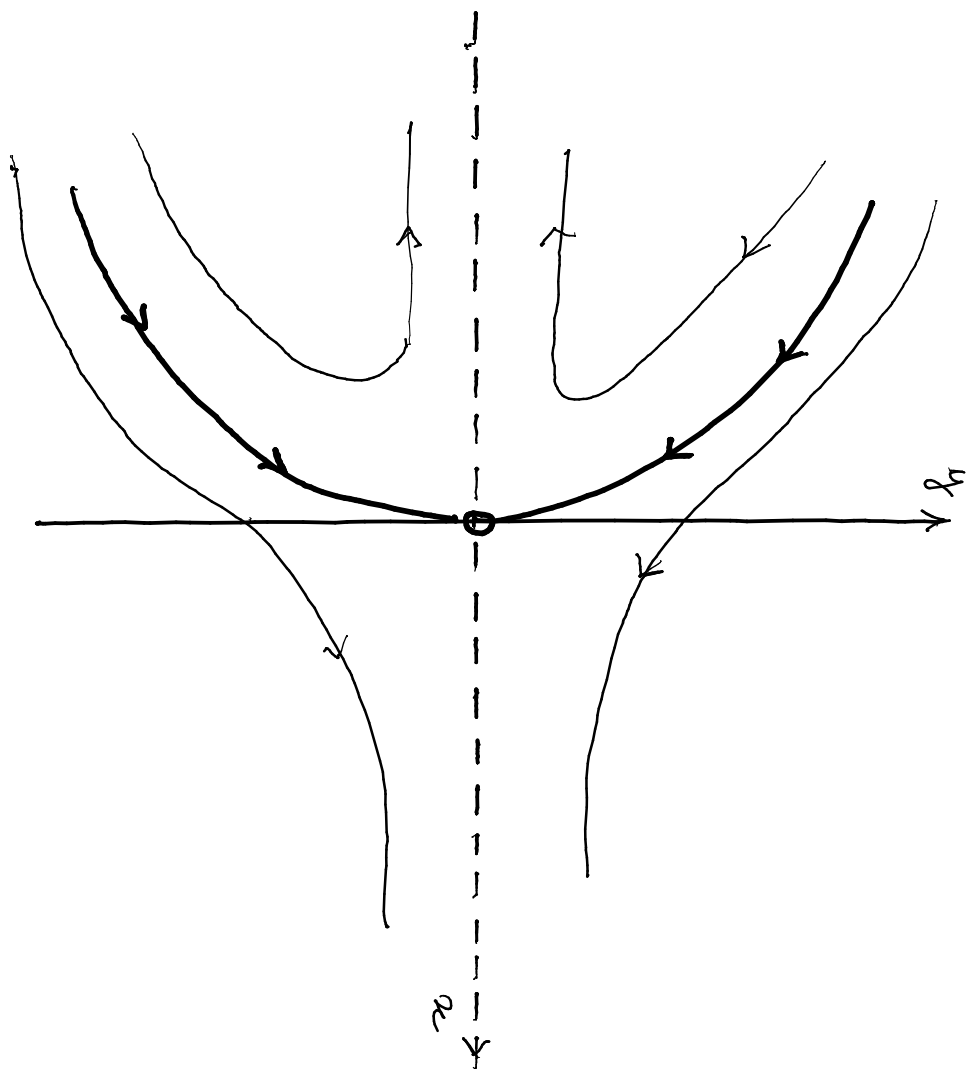
Fork bifurcation

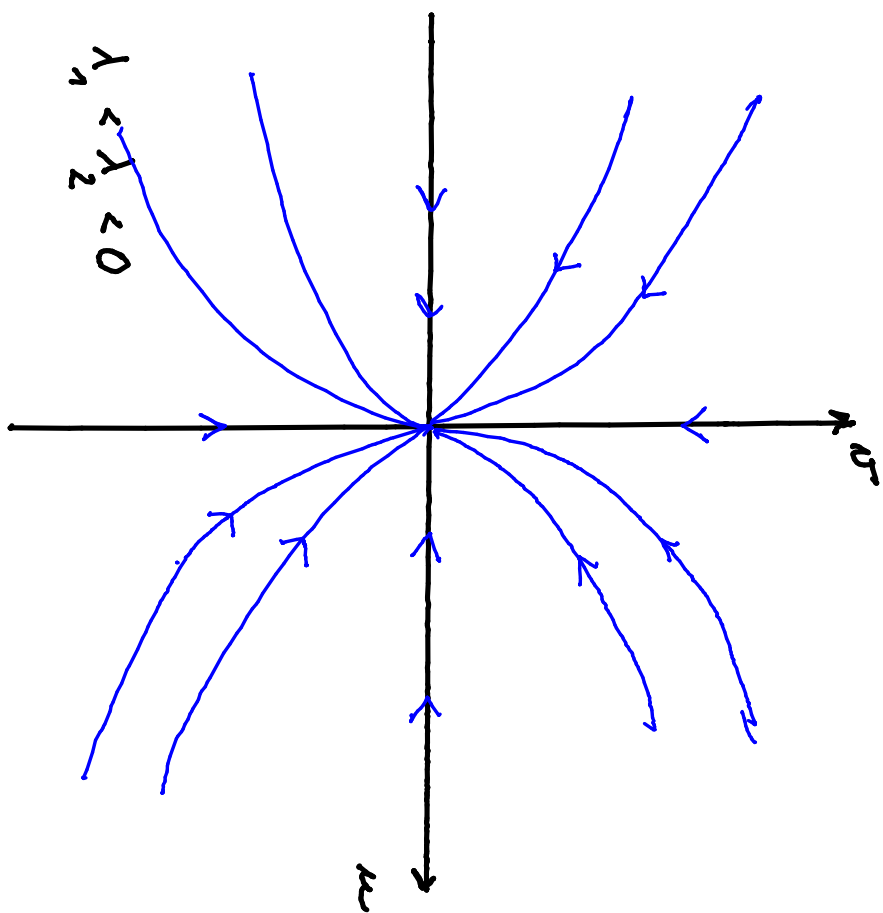


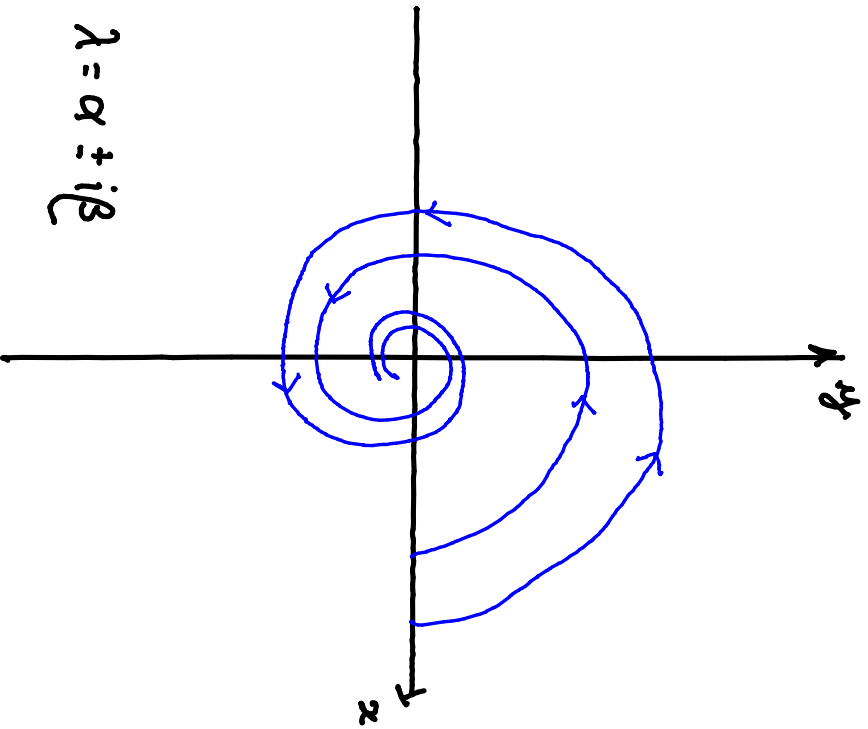
$$f(x; \eta p) = \eta p x - x^3$$





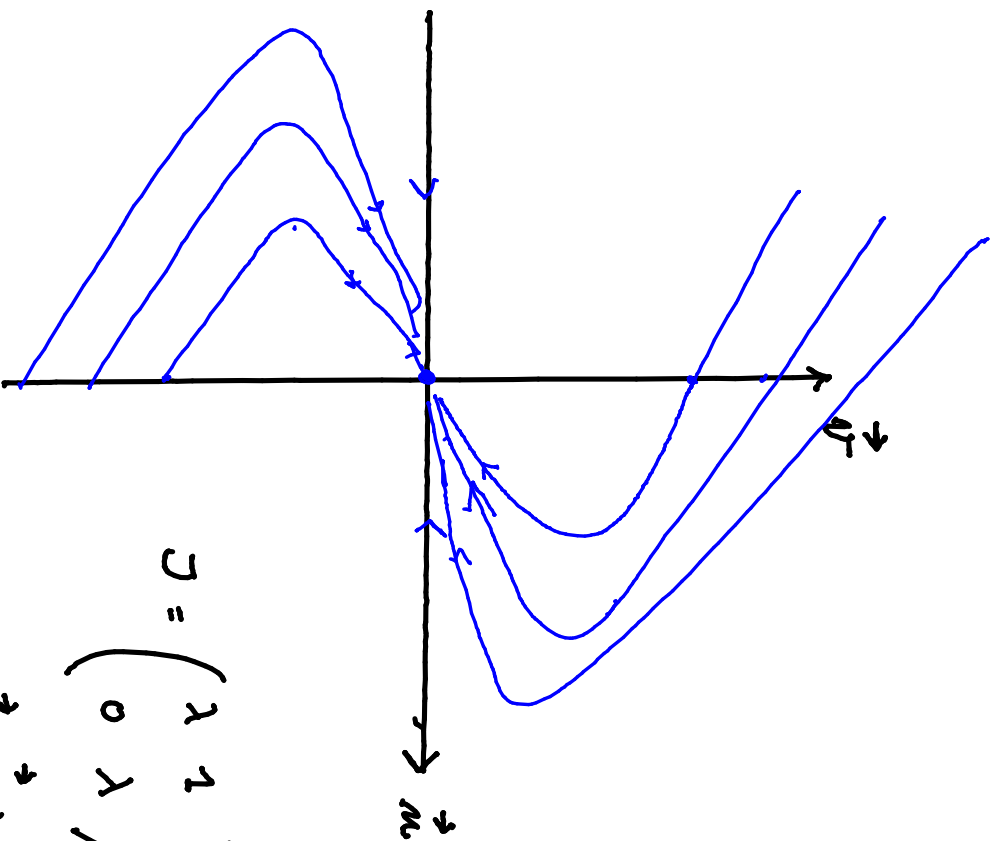






$$\lambda = \alpha \pm i\beta$$

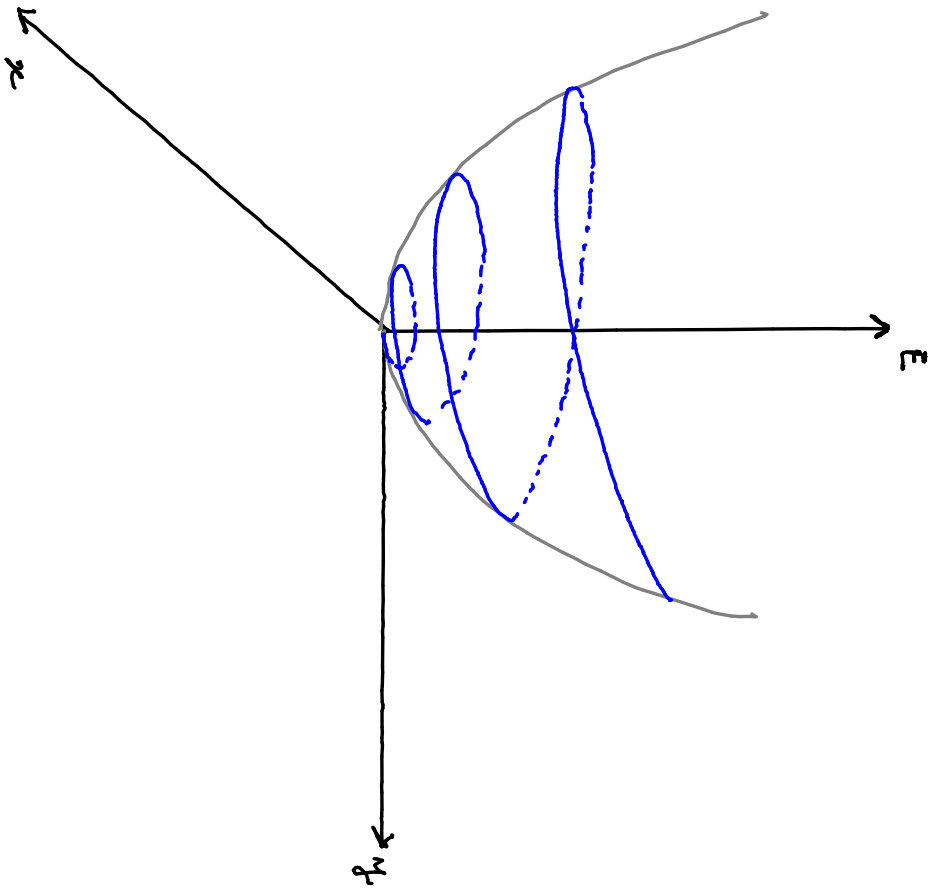
$$\alpha < 0$$



$$J = \begin{pmatrix} \lambda & 1 \\ 0 & \lambda \end{pmatrix}$$

$$T = (\vec{u}, \vec{v})$$

$$\lambda < 0$$



$$\frac{dV}{dt} = \frac{dx}{dt} \cdot \vec{\nabla} V < 0$$

