Tuesday, November 18

Think about a system which, in polar coordinates, is given by

$$\frac{dr}{dt} = \mu r + r^3 - r^5, \quad \frac{d\theta}{dt} = \omega,$$

where $\omega \neq 0$ is a constant.

(a) Translate into (x, y)-coordinates.

(b) That are the eigenvalues of the Jacobi matrix at $(x_*, y_*) = (0, 0)$? How do they depend on ω?