Handout 7

August 27, 2015

Problem 1 Find and classify all critical points of the system.

$$x' = x - y - x^2 + xy$$

$$y' = -x^2 - y$$

Problem 2 Find and classify all critical points of the system.

$$x' = y\cos(x)$$

$$y' = x\cos(y)$$

Eigenvalues of linearization	Type of critical point
real, positive, unequal	improper nodal source
real, negative, unequal	improper nodal sink
real, opposite signs	saddle point
real, positive, equal	nodal or spiral source
real, negative, equal	nodal or spiral sink
complex, real part positive	spiral source
complex, real part negative	spiral sink
complex, real part zero	center or spiral source/sink