2E2 Tutorial Sheet 15 Second Term[1]

17 February 2004

1. (3) By linearizing around the critical points, draw the phase plane portrait of

$$y'' + y - y^3 = 0 \tag{1}$$

2. (3) By linearizing around the critical points, draw the phase plane portrait of

$$y'' = \cos 2y \tag{2}$$

3. (3) By linearizing, sketch the phase space trajectories of

$$y'' = -y' + y - y^2 \tag{3}$$

[1] Conor Houghton, `houghton@maths.tcd.ie` and `http://www.maths.tcd.ie/~houghton/ 2E2.html`