$\mu = 0$

2.3

a)

$$\dot{x} = -4y - x^3$$
$$\dot{y} = 4x + 2y^3 \quad (1) \Rightarrow \omega = 4$$

$$\dot{x} = y - x^2$$
$$\dot{y} = -x + 2x^2 \quad (2) \Rightarrow \omega = -1$$

$$\dot{x} = -\omega y + f(x,y)$$
$$\dot{y} = \omega x + g(x,y)$$

b)

$\Rightarrow$ $f_{(1)} = -x^3$ $\quad$ $f_{(2)} = -x^2$

$g_{(1)} = 2y^3$ $\quad$ $g_{(2)} = 2x^2$