$$\dot{x}_1 = x_2 - x_1^3$$

$$\dot{x}_2 = -x_1 - x_2^3$$

Let $V = \frac{1}{2}(x_1^2 + x_2^2)$

$$\dot{V} = x_1\dot{x}_1 + x_2\dot{x}_2$$

$$= x_1x_2 - x_1^4 + -x_2x_1 - x_2^4$$

$$= -x_1^4 - x_2^4$$

$\dot{V} < 0$ in $\mathbb{R} - \{0\}$

$\Rightarrow$ Asymptotically stable (And is in fact Globally asymptotically stable)