

# MA 262: Quiz 4 Section 596/597

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**Problem 1.** Given the differential equation

$$\frac{dx}{dt} = x^2 - 1$$

- (a) graph the phase diagram,
- (b) find all the critical points,
- (c) and classify the critical points as either stable, semistable or unstable.

**Problem 2.** Given the differential equation

$$\frac{dx}{dt} = -x^2$$

- (a) graph the phase diagram,
- (b) find all the critical points,
- (c) and classify the critical points as either stable, semistable or unstable.