Practice Exam 2 - MATH 1502

Indicate your name and section. The exam will be closed book, closed notes and no calculators will be allowed. Show all your work.

Problem 1: Solve the differential equation
\[ \frac{dy}{dx} = e^{-x} \text{ with } y(0) = 10 \]

Problem 2: Solve the differential equation
\[ \frac{dy}{dx} = y(y - 5) \text{ with } y(0) = 1 \]

Problem 3: Solve the differential equation
\[ \frac{dy}{dx} = x^2y^2 \text{ with } y(1) = 1 \]

Problem 4: Find the equilibria of
\[ \frac{dy}{dt} = y(y - 1)(y - 2). \]
Find the stability of the equilibrium points.

Problem 5: Problem 1 of section 8.5 page 519.

Problem 6: Problem 4 of section 8.5 page 520.