Practice Exam 1 - 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 (points):** Find the third order Taylor polynomial of \( \sin(x) \) near \( \pi/2 \).

**Problem 2 (points):** Find the third order Taylor polynomial of \( x^3 + 2x - 3 \) near 2.

**Problem 3 (points):** Suppose organisms grow in mass according to the differential equation \( \frac{dM}{dt} = 2t^{-1/2} \), where \( M \) is measured in grams and \( t \) in days. Suppose that \( M(0) = 5g \). Find the solution. What is the \( M \) after 3 days?.

**Problem 4 (points):** Find \( \int \cos(2\pi(x - 2))dx \).

**Problem 5 (points):** Find \( \int_0^4 x\sqrt{2 + x^2}dx \).

**Problem 6 (points):** Problem 35 page 369

**Problem 7 (points):** Find \( \int_1^3 x \ln xdx \).
Problem 8 (points?): Problem 7 page 398

Problem 9 (points?): Problem 12 page 399

Problem 10 (points?): Problem 9 page 409