

**Problem.** This is an unnumbered problem.

**Problem 1.** This is a numbered problem.

**Problem 2.** (5 points) This is the second numbered problem.

**Problem 3.** This problem has several parts:

- (a) The first part.
- (b) The second part.
- (c) The third part.

**Problem 4.** Compute the following integral

$$\int e^{-x^2} dx$$

**Problem 5.** Explain why everyone loves Mathematics.

**Problem 6.** Compute the integral  $\int \sin x^2 dx$ .

**Problem 7.** In the space provided, prove the Riemann Hypothesis.