

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.