HONOR STATEMENT

"I affirm that my work upholds the highest standards of honesty and academic integrity at the University of Washington, and that I have neither given nor received any unauthorized assistance on this exam."

Exam Rules:

1. Your exam should consist of this cover sheet, followed by 5 problems. Check that you have a complete exam.
2. Pace yourself. You have 50 minutes to complete the exam and there are 5 pages. Try not to spend more than 10 minutes on each page.
3. You may use a straight edge for graphing.
4. Unless otherwise indicated, show all your work and justify your answers.
5. You may use one 8.5×11-inch sheet of handwritten notes (both sides) and a TI-30X IIS scientific calculator for computation. All other electronic devices are strictly forbidden.
6. Unless otherwise indicated, your answers should be exact values rather than decimal approximations. (For example, $\pi/4$ is an exact answer and is preferable to its decimal approximation 0.7854.)
7. You are not allowed to use scratch paper. If you need more room, use the back of the page and indicate to the reader that you have done so.
8. *TURN OFF YOUR PHONE AND PUT IT OUT OF SIGHT!* If the proctor sees or hears a phone during the exam, you will be asked to either surrender either the phone or your exam.
9. The use of headphones or earbuds during the exam is not permitted.
10. You have signed an honor statement. Cheating is a hassle for everyone involved. DO NOT CHEAT. If you are caught cheating, you will be given a zero on the exam and reported to the academic disciplinary board
11. You may be asked to present a photo ID at any point during the exam. If you don not have one, then you will be asked to surrender your exam.

The exam is worth a total of 50 points. The motivating theme of each question is listed below.

Questions 1: Polar graphs.

Questions 2: Gradients, partial derivatives, linear approximations, and tangent planes.

Question 3: Optimization.

Question 4: Double integrals in Cartesian coordinates, volumes, domain of integration, and changing the order of integration.

Question 5: Double integrals in polar coordinates: converting domains of integration from Cartesian to polar coordinates ($x = r\cos\theta$, $y = r\sin\theta$, $\mathsf{d}A = r\,\mathsf{d}r\,\mathsf{d}\theta$), interchange order of integration, and volumes.

The questions on the midterm will be modeled on those from the published previous midterm and final exams.