University of Toronto
Faculty of Arts and Science

MAT237 Multivariable Calculus with Proofs

Final Exam

S. Artamonov, F. Parsch, and A. Zaman

Monday April 24, 2023

Duration: 180 minutes

No aids permitted

Instructions

- **Do not open the exam until you are instructed to do so.** Failure to comply is an academic offence.
- **No aids are permitted on this examination.** Examples of illegal aids include but are not limited to textbooks, notes, calculators, cellphones, or any electronic device.
- **Once the exam begins, check that you have all pages.** This exam contains 18 pages including this cover page, and is printed **double-sided** on 9 sheets of paper. There are 10 problems.
- **Show your work and justify your steps** on every question, unless otherwise indicated.
- **Organize your work** in a reasonably neat and coherent way, in the space provided. Work scattered all over the page without a clear ordering will receive very little credit.
- **If you need more space**, use the blank pages at the end of the exam and clearly indicate on the question page when you have done this. **Do not tear any pages off this exam.**