

Name: \_\_\_\_\_ Student Number: \_\_\_\_\_

Mathematics 1110H, TRENT UNIVERSITY, Fall 2025.

Test #4 for Sections F02 and F04. *Friday, 14 November.* Time: 20 minutes.

**Instructions**

- Write your name and student number at the top.
- Use only this sheet of paper, including the back side. If you need more paper, ask for it.
- You may use an aid sheet, A4- or letter-size with whatever you want written on all sides, and a calculator, with no restrictions beyond not being able to communicate with other devices.
- **Do one (1) of questions 1 or 2.** (Question 2 is on page 2.)

1. What is the maximum area of a rectangle whose perimeter is 12 *cm* long? *[10]*

2. Stick Person takes a walk on a dark night. Stick walks slowly at  $1 \text{ m/s}$  on level ground, holding a lamp  $1.5 \text{ m}$  above the ground, straight towards a  $1 \text{ m}$  tall post, which casts a shadow on the ground in the light from the lamp. How is the length of this shadow changing at the instant that Stick is  $3 \text{ m}$  from the post? *[10]*