

**Mathematics 1110H – Calculus I: Limits, Derivatives, and Integrals**  
TRENT UNIVERSITY, Fall 2025  
**Workshop Problems for 2025-11-14**

Just in case they want a little more practice before Test #4 ...

- A rectangle has its base on the  $x$ -axis and its top corners are on the parabola  $y = 16 - x^2$ . Find the maximum area of such a rectangle.
- Sticky Wicky, who is  $1\text{ m}$  tall, is being chased by a  $4\text{ m}$  tall, Ent at night. Sticky is running at  $5\text{ m/s}$  directly away from the Ent, who is running directly towards Sticky at  $10\text{ m/s}$ . The Ent is carrying a lamp  $3\text{ m}$  above the ground, in the light of which Sticky casts a shadow upon the ground. How is the tip of this shadow moving at the instant that the Ent is  $10\text{ m}$  behind Sticky?