

Mathematics 1110H – Calculus I: Limits, derivatives, and Integrals

TRENT UNIVERSITY, Summer 2018

Assignment #3

Optimal Cone

Due on Wednesday, 30 May.

1. A right circular cone with radius r and height h has volume $V = \frac{1}{3}\pi r^2 h$ and surface area (counting the area of the circle at the non-pointy end) of $A = \pi r^2 + \pi r \sqrt{r^2 + h^2}$. Suppose that such a cone is to have a total volume of $100 L$. What is the minimum possible surface area of such a cone? *[10]*