

## Written Homework 5

Math 126

Solve each of the following problems. Write your solutions clearly and neatly on separate paper, explaining your reasoning with complete sentences. Submit your work either in class or in the homework mailbox (RMS level 3, near the fireplace) by 4:00pm on **Wednesday, September 25**.

1. Find the value(s) of  $c$  such that the area bounded by the parabolas  $y = x^2 - c^2$  and  $y = c^2 - x^2$  is 576.
2. The graph of the *hyperbolic cosine* function  $y = \cosh(x) = \frac{1}{2}(e^x + e^{-x})$  is called a *catenary* and represents the shape of a hanging cable. Find the length of this graph from  $x = -1$  to  $x = 1$ .