

# Homefun 4

## The Boxer

MATH 150  
10 points

**Directions:** Work in groups of 2 to 4 in class and then finish outside of class as necessary. Each group should submit **ONE** solution page for the group. (Be sure everyone's name is on it!)

A cardboard box can be made out of a sheet of cardboard by cutting out equal  $x$  by  $x$  squares from each corner and folding up the resulting flaps.

Suppose that a square of size  $x$  is cut out of each corner of a 4ft by 6ft sheet of cardboard.

1. What is the volume of the resulting box?
2. What is the appropriate domain  $[a, b]$  for this function?
3. Use the bisection method to approximate (within 0.1) the value of  $x$  needed for the volume to equal 6 cubic feet.