

Math 335.01

Weekly Problems #6 (Due Friday, October 31, 2008)

- (1) Consider the triangle with vertices at the points  $(-2, 0)$ ,  $(0, 2)$ , and  $(1, 0)$ . Consider a point picked uniformly at random inside the triangle. Find the density function for the  $x$ -coordinate.
  
- (2) Assume that  $b$  and  $c$  are independently and uniformly selected, each from the interval  $[-B, B]$ .
  - (a) Find the probability that the equation  $x^2 + bx + c = 0$  has real roots. You should get an answer that depends upon the value of  $B$ . You may assume  $B \geq 0$ .
  - (b) What happens as  $B \rightarrow \infty$ ?
  - (c) What happens as  $B \rightarrow 0^+$ ?