The BD function

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Abstract

In this paper, I describe the BD function.
The paper ends with "The End"

Introduction

The BD function is useful in many fields including economics, finance and statistics.
In this paper, I describe the BD function.

The BD function

Define

$$f(b,d,x) = \begin{cases} 0 & 0 \leq x \leq d \\ \frac{2(x-d)}{b^2} & d < x \leq d + \frac{b}{2} \\ \frac{2(b+d-x)}{b^2} & d + \frac{b}{2} < x \leq d + b \\ 0 & d + b < x \end{cases}$$

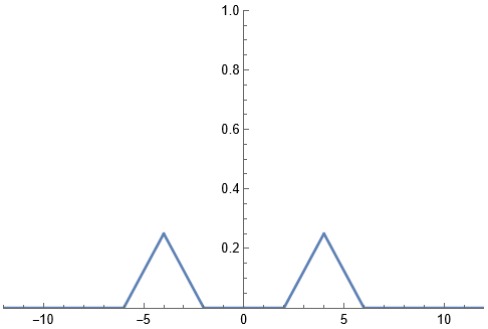
Then the BD function is

$$g(b,d,x) = \begin{cases} f(b,d,|x|) & x < 0 \\ f(b,d,x) & x \geq 0 \end{cases}$$

A property of the BD function

1. If $b > 0 \wedge d \geq 0$ then $\int_{-\infty}^{\infty} g(b,d,x)dx = 1$

A particular plot of the BD function



A particular plot of the BD function
for $b = 4 \wedge d = 2$

The End