

Mathematics 1550H – Introduction to probability

TRENT UNIVERSITY, Summer 2017

Assignment #5

Unexpected Value

Due on Wednesday, 26 July, 2017.

1. Verify that $f(x) = \frac{1}{\pi(1+x^2)}$ is a probability density function, but that a random variable X that has $f(x)$ as its probability density does not have a finite expected value. [5]

Hint: Try computing $E(X)$ and see what you get . . .

2. Find a function $g(x)$ such that a random variable X which has $g(x)$ as its probability density function has a finite expected value, but does not have a finite variance. [5]