

Mathematics 1550H – Introduction to probability

TRENT UNIVERSITY, Summer 2016

Assignment #4

(Un)expected Value

Due on Monday, 18 June, 2016.

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