

**MATH48181/68181: EXTREME VALUES AND FINANCIAL RISK**  
**SEMESTER 1**  
**QUIZ PROBLEM 1**

(Deadline: Tuesday 10 November 2020, 12:00noon)

Suppose  $X$  is a random variable with probability density function

$$f(x) = \sqrt{\frac{2}{\pi}} \exp\left(-\frac{x^2}{2}\right)$$

for  $x > 0$ . Derive the max domain of attraction of  $F$ . Please give full details.

**This problem is worth 1 mark. Marking scheme: 1 mark if the answer is correct, and the derivation is correct and detailed enough; 0.5 mark if the answer is correct, and the derivation is incorrect or not detailed enough; 0.5 mark if the answer is incorrect or not given, but the derivation is correct and detailed enough; 0 mark if the answer is correct, but the derivation is not detailed enough; 0 mark if the answer is incorrect, and the derivation is not detailed enough.**

**Please email your solution to [mbbssn2@manchester.ac.uk](mailto:mbbssn2@manchester.ac.uk) I will mark your solutions and email your mark, feedback and scanned work to you within 24 hours of the deadline. PLEASE DO NOT FORGET TO WRITE YOUR FULL NAME AND ID.**