MATH4/68181: EXTREME VALUES AND FINANCIAL RISK
SEMESTER 1
QUIZ PROBLEM 3
(Deadline: Tuesday 5 November 2019, 12:00noon)

Consider a class of distributions defined by the cdf

$$F(x) = [G(x)]^a \left\{ 1 + \lambda - \lambda \, [G(x)]^b \right\}$$

where $a > 0$, $b > 0$, $-\infty < \lambda < \infty$ and $G(\cdot)$ is a valid cdf. Show that F belongs to the same max domain of attraction as G. You may assume that F and G have the same upper end points. Please give full details.

This problem is worth **2 marks**. Marking scheme: **2 marks** if the answer is correct, and the derivation is correct and detailed enough; **1 mark** if the answer is correct, and the derivation is incorrect or not detailed enough; **1 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.

You can give your written solution to me during any of the lectures or example classes. You can also bring your solution to ATB2.223, place it under the door if I am not in. Email submissions or late submissions will not be accepted. 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.**