

**MATH48181/68181: EXTREME VALUES AND FINANCIAL RISK**

**SEMESTER 1**

**QUIZ PROBLEM 4**

**(Deadline: 11:00am on Wednesday, 10 November 2021)**

Suppose a portfolio is made of up of  $k$  independent investments. Let  $X_1, X_2, \dots, X_k$  denote the losses. Assume that  $X_i$  are Uniform  $[-\theta, \theta]$  random variables. Derive the expected minimum portfolio loss. 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 use Blackboard to submit your answer.**