

MA 587/687

Name (Print last name first):

Quiz 2

Question 1

Find the expectation of $\frac{1}{(1+U)(2+U)}$ where U is a $\text{Poisson}(\lambda)$ random variable.

Question 2

A device fails if either of its components fail. The joint density for the lifetime (in hours) of the components is

$$f_{XY}(x, y) = c(x + y) \quad \text{when } 0 < x, y < 1$$

(and 0 otherwise). Calculate c and also calculate the probability that the device fails within half an hour.

Question 3

Let U be uniform on $[0, 1]$. Derive the density for $W = U^n$.