DATA 468 Homework 2

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Instructions: Please write or type your solutions clearly and show all relevant steps. Once you are done, please upload your solutions to Gradescope. Ifyou need to scan your solutions, please use a free scanning app like CamScanner instead of sending photographs. Please submit your solutions within the prescribed time, as late submissions will be not considered.

Let $\{X(t), t \in [0, \infty)\}$ be defined as $X(t)=A+Bt$, for all $t \in [0, \infty)$, where A and B are independent normal N(2,2) random variables.

1. Find all possible sample functions for this random process.
2. Write down the normal distribution of Z and Y
3. Define the random variable Z=X(2), Find the PDF of Y
4. Let also Y=X(3), Find E[YZ]

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