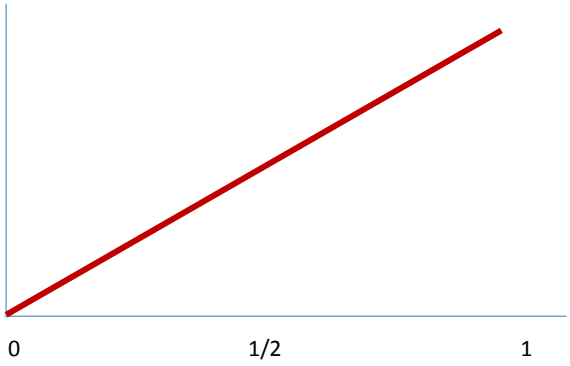
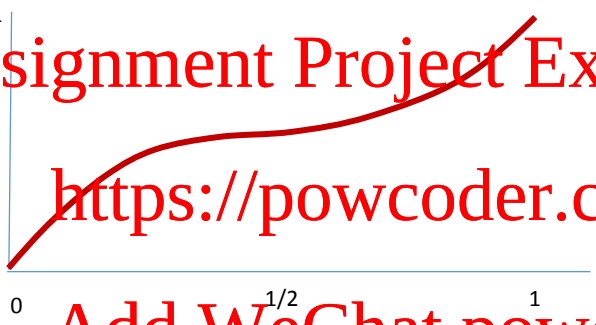
QBUS6820 Probability quiz

1. Given this density function:

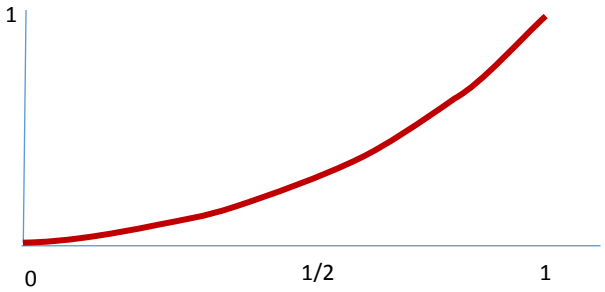


Which of these options represents the Cumulative Distribution Function?

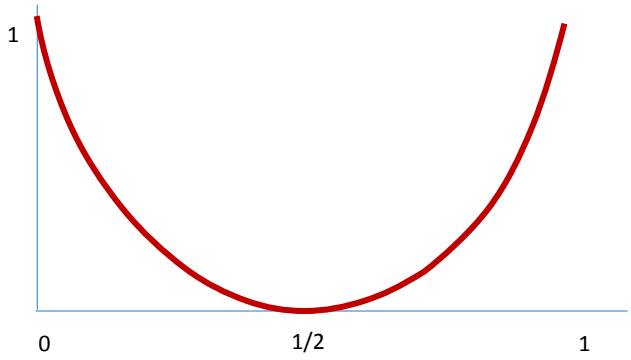
A.



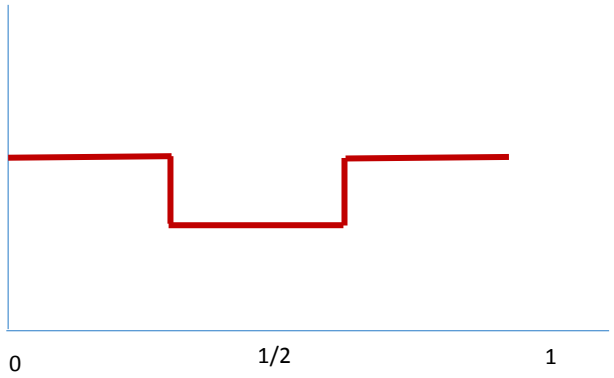
B.



C.

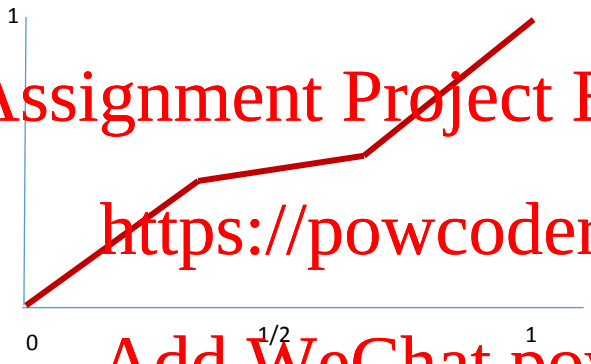


2. Given this density function:

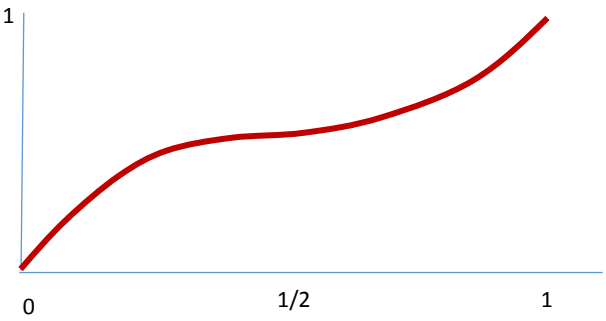


Which of these options represents the Cumulative Distribution Function?

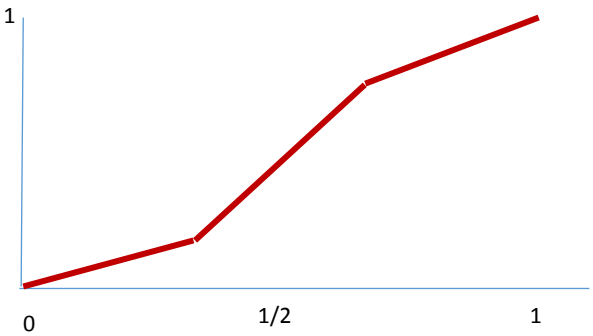
A.



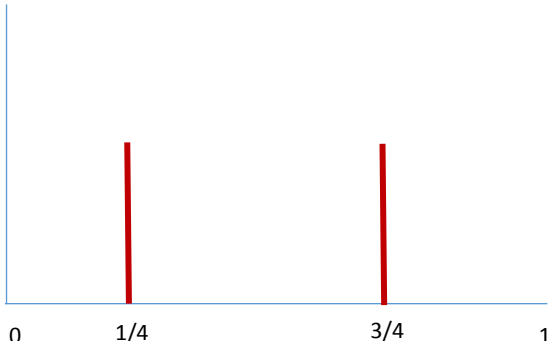
B.



C.



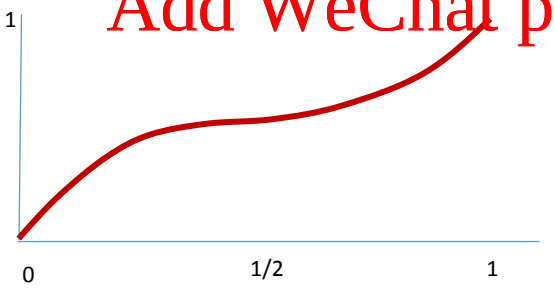
3. Given this (discrete) density function:



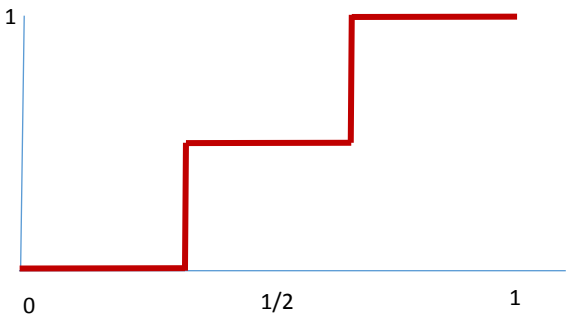
Which of these options represents the Cumulative Distribution Function?

A.

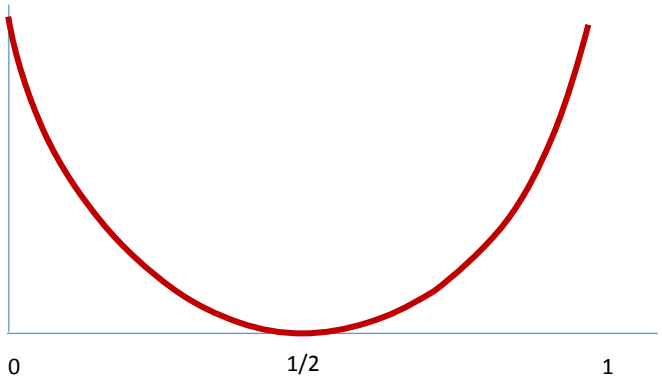
B.



C.

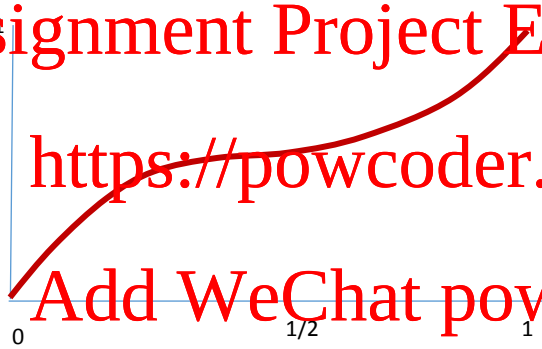


4. Given this density function:

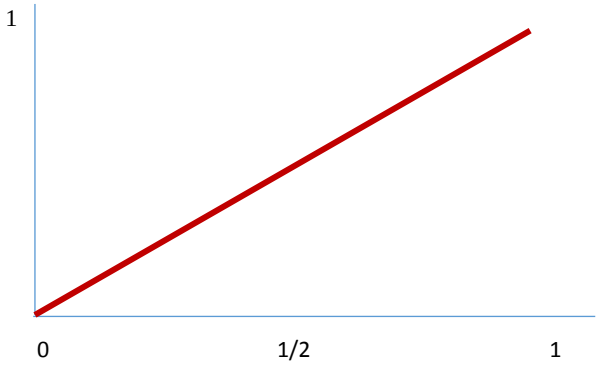


Which of these options represents the Cumulative Distribution Function?

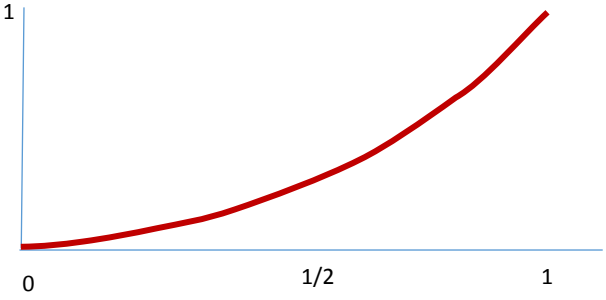
A.



B.



C.



5. A fair dice is thrown. The event A is that the number is odd (i.e. 1, 3 or 5). Find an event B such that $\Pr(A \cup B)$ is not equal to $\Pr(A) + \Pr(B)$

6. Using the same definition of the event A as in question 5, let C be the event that the dice shows 4, 5 or 6. What is $\Pr(A \mid C)$ (i.e. what is the probability of A given that C occurs)?

7. Let F be the cumulative distribution function and f the density function for the uniform distribution on (0, 1) (for which every value between 0 and 1 is equally likely). What is $F(0.5)$ and what is $f(0.5)$?

8. A random variable takes the value 1 with probability 2/3 and the value 4 with probability 1/3. What is the mean and variance of this random variable?

9. A triangular random variable has $f(x) = x$ for $x \in [0,1]$ and $f(x) = 2 - x$ for $x \in [1, 2]$. What is $F(1.5)$?