

Name:

Quiz – 28 August 2019

Instructions. You have 15 minutes to complete this quiz. You may use your calculator. You may not use any other materials (e.g., notes, homework, books).

Problem	Weight	Score
1	1	
2	1	
3	1	
4	1	
5	1	
Total		/ 50

For Problems 1 and 2, consider the random variable X with the following pdf:

$$f_X(a) = \begin{cases} 0 & \text{if } a < -2, \\ \frac{3a^2}{16} & \text{if } -2 \leq a \leq 2, \\ 0 & \text{if } a > 2. \end{cases}$$

Problem 1. What is the probability that $-1 \leq X \leq 1$?

Problem 2. Professor I. M. Wright peeks over your shoulder and declares,

“The probability that $X = 1$ is $\frac{3}{16}$, since $f_X(1) = \frac{3}{16}$.”

Is Professor Wright correct? Briefly explain.

For Problems 4 and 5, consider the random variable X with the following cdf:

$$F_X(a) = \begin{cases} 0 & \text{if } a < -2, \\ 2/9 & \text{if } -2 \leq a < 3, \\ 3/9 & \text{if } 3 \leq a < 7, \\ 7/9 & \text{if } 7 \leq a < 12, \\ 1 & \text{if } a \geq 12. \end{cases}$$

Problem 3. What is the probability that $1 < X \leq 8$?

Problem 4. What is the probability that $X = 3$?

Problem 5. Is X discrete or continuous? Briefly explain.