

1. Toss a coin 3 times. Let
A = 'at least 2 heads'
B = 'first toss is tails'
What is $P(A|B)$ and $P(B|A)$?

- A. $\frac{1}{4}$, $\frac{1}{3}$
B. $\frac{1}{6}$, $\frac{1}{3}$
C. $\frac{1}{8}$, $\frac{1}{5}$
D. $\frac{1}{4}$, $\frac{1}{4}$

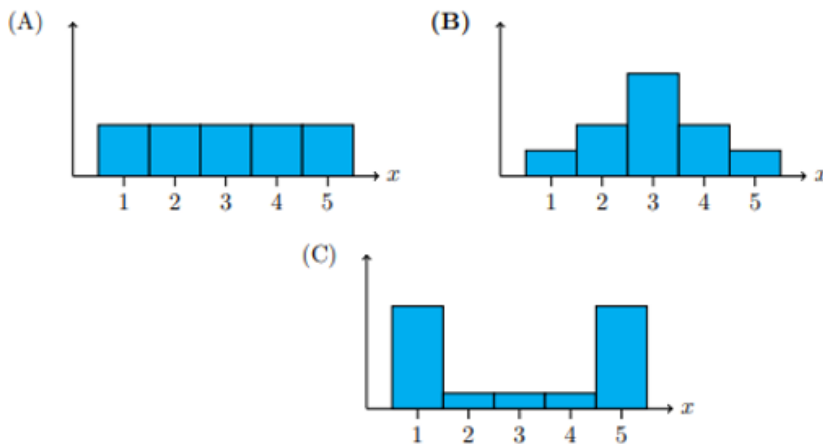
2. X is a random variable and values of X are { 2, 4, 5, 7, 8 } and cdf of it are { 0.25, 0.40, 0.75, 0.80, 1.00 } respectively
What is $P(X \leq 5)$ and $P(X = 7)$

- A. 0.75, 0.25
B. 0.75, 0.05
C. 0.40, 0.80
D. 0.25, 0.40

3. Answer the question in the picture

Concept question

The graphs below give the pmf for 3 random variables. Order them by size of standard deviation from biggest to smallest. (Assume x has the same units in all 3.)



- A. ACB
C. CAB
- B. BCA
D. ABC

4. We have a 5-sided dice. These side values are $\{ 2, 4, 8, 16, 16 \}$. The sides have realization probability inversely proportional to the face values $\{ 1/2, 1/4, \dots \}$. What is the expected value of a throw?

- A. 3.5
B. 4
C. 5
D. 4.5

5. X is a variable with following values and pmf respectively; $\{2, 3, 4\}$ & $\{0.3, 0.4, 0.3\}$ Compute the mean and the variance

- A. 3, 1.2 B. 2.8, 0.6
C. 2.8, 1.2 D. 3, 0.6

6. i. CDF(cumulative distribution function) is commonly used for data exploration and comparison
ii. PMF(probability mass function) is commonly used when there are a small number of unique & discrete values
iii. The bayesian rule helps to calculate events assuming another given event has already happened
- A. All
B. I and II
C. Only I
D. II and III