1. Let random variable U represent the field goal percentage (percentage of shots made) for players in a basketball league. The following table shows the probability distribution of the random variable U.

Field Goal Percentage	Probability
0.3	0.10
0.4	0.45
0.5	0.30
0.6	0.10
0.7	0.05

Fatima claims that the distribution of U is uniform with a median of 0.4 field goal percentage. Is Fatima's claim supported by the table?

(A) Yes, the distribution is uniform with a median of 0.4 field goal percentage.

(B) No, the distribution is uniform with a median of 0.5 field goal percentage.

(C) No, the distribution is skewed to the right with a median of 0.4 field goal percentage. ✓

(D) No, the distribution is skewed to the right with a median of 0.5 field goal percentage.

(E) No, the distribution is skewed to the left with a median of 0.4 field goal percentage.

Answer C

Correct. Fatima's claim is not supported by the table. A relative frequency histogram of the data will display most of the weight over the bars associated with a field goal percentage of 0.3 and 0.4 with a tail from 0.5 to 0.7, indicating a right skew. The median is equal to 0.4 field goal percentage, because 0.4 is the middle value of the distribution.

2. Let random variable Y represent the number of interviews conducted for job openings at a certain company. The following table shows the cumulative probability distribution of the discrete random variable Y.

y	$P(Y \leq y)$
5	0
6	0.2
7	0.4
8	0.6
9	0.8
10	1.0

Khaleed claims that the distribution of Y is skewed to the left with mean equal to 8 interviews. Is Khaleed's claim correct?

(A) Yes, the distribution is skewed to the left with mean equal to 8 interviews.

(B) No, the distribution is skewed to the left with mean greater than 8 interviews.

(C) No, the distribution is skewed to the right with mean equal to 8 interviews.

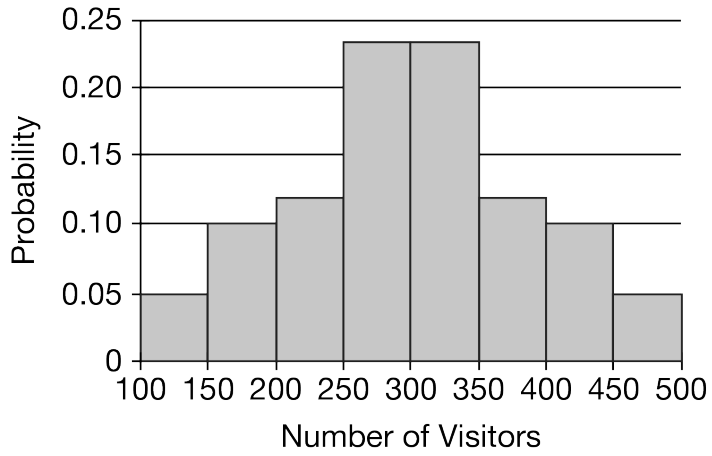
(D) No, the distribution is uniform with mean equal to 8 interviews. ✓

(E) No, the distribution is uniform with mean greater than 8 interviews.

Answer D

Correct. Khaleed's claim is not correct. The probabilities shown in the table are cumulative; the individual probabilities for 6, 7, 8, 9, and 10 interviews are each 0.2, indicating a uniform distribution. Each value has the same weight, so the mean is the value in the center, which is 8 interviews.

3. Let random variable R represent the the number of visitors to a certain museum during a given day. The following table shows the probability distribution of the random variable.



Which of the following claims about the distribution of random variable R is best supported by the histogram?

(A) The most likely number of visitors to the museum on a given day is between 450 and 500.

(B) The mean number of visitors to the museum is much less than the median number of visitors.

(C) The mean number of visitors to the museum is much greater than the median number of visitors.

(D) On a given day, the number of visitors from 100 through 500 will occur with equal probabilities.

(E) On a given day, it is equally likely for the museum to have less than 300 visitors as it is to have more than 300 visitors. ✓

Answer E

Correct. The distribution displayed in the histogram is symmetric, which indicates values below the center and above the center are equally likely.