

Question 1 

Data are collected on the 35 students in a college history course. Which of the following is not a variable for the data set?

- A** Student birth month
- B** Political affiliation of student
- C** Student age
- D** Student address
- E** Number of students in the data set

Question 2 

A local ice-cream shop sells ice-cream cones for \$2.00, and customers can choose from the following options.

Ice-cream flavor

Type of cone: sugar or waffle

Chocolate dipped for an additional \$0.50

Sprinkles for an additional \$0.50

Which of the following is a quantitative variable?

- A** Ice-cream flavor
- B** Type of cone
- C** Chocolate dipped or not
- D** Sprinkles or not
- E** The total cost of the cone

Question 3 

The following table shows data collected about the thirty-third through fortieth presidents of the United States. All variables reported in the table are categorical.

Name	Political Party	Eye Color	Age at Inauguration	Dominant Hand
Harry S. Truman	Democrat	Blue	Typical	Left
Dwight D. Eisenhower	Republican	Blue	Typical	Right
John F. Kennedy	Democrat	Blue	Typical	Right
Lyndon B. Johnson	Democrat	Brown	Typical	Right
Richard Nixon	Republican	Brown	Typical	Right
Gerald Ford	Republican	Blue	Typical	Both
Jimmy Carter	Democrat	Hazel	Younger	Right
Ronald Reagan	Republican	Blue	Older	Left

Which of the variables in the table could have been reported differently such that the variable would be classified as quantitative?

- A Name
- B Political Party
- C Eye color
- D Age at inauguration
- E Dominant hand

Question 4 

A company that makes fleece clothing uses fleece produced from two farms, Northern Farm and Western Farm. Let the random variable X represent the weight of fleece produced by a sheep from Northern Farm. The distribution of X has mean 14.1 pounds and standard deviation

1.3 pounds. Let the random variable Y represent the weight of fleece produced by a sheep from Western Farm. The distribution of Y has mean

6.7 pounds and standard deviation

0.5 pound. Assume X and Y are independent. Let W equal the total weight of fleece from 10 randomly selected sheep from Northern Farm and 15 randomly selected sheep from Western Farm. Which of the following is the standard deviation, in pounds, of W ?

A $1.3 + 0.5$

B $\sqrt{1.3^2 + 0.5^2}$

C $\sqrt{10(1.3)^2 + 15(0.5)^2}$

D $\sqrt{10^2(1.3)^2 + 15^2(0.5)^2}$

E $\sqrt{\frac{1.3}{10} + \frac{0.5}{15}}$

Question 5 

A group of first-grade students were asked to name their favorite color. The responses are shown in the following frequency table.

Color	Frequency
Red	15
Blue	30
Green	8
Yellow	12
Purple	25

Which of the following statements is supported by the frequency table?

- A** More students chose purple than any other color.
- B** Twice as many students chose blue as chose red.
- C** Yellow was chosen by the least number of students.
- D** The total number of student responses is 80.
- E** The combined number of students who chose green and yellow is greater than the number of students who chose purple.

Question 6 

The following relative frequency table shows reasons given by high school students for their last absence from school.

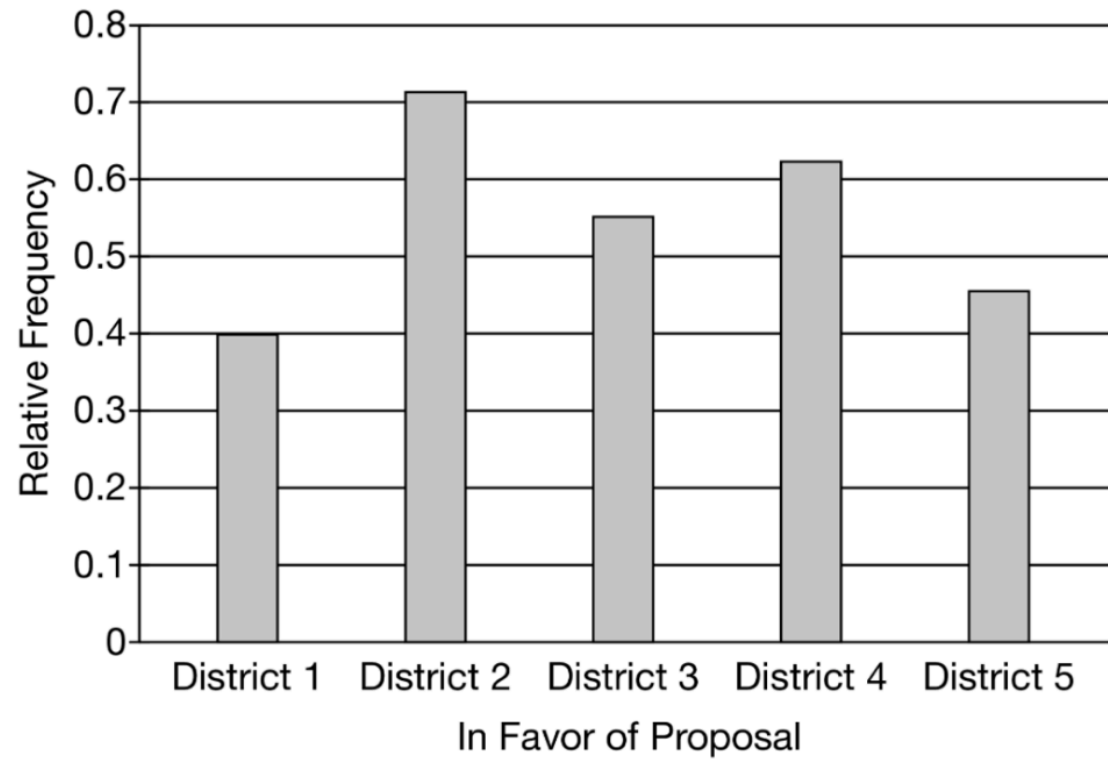
Reason	Relative Frequency
Illness	0.57
Overslept	0.20
College visit	0.16
Did not finish assignment	0.07

Which of the following statements is not supported by the relative frequency table?

- A** More than half the students were absent because of illness.
- B** More than one-third of the students were absent because of oversleeping or college visits.
- C** The reason given the least number of times was did not finish assignment.
- D** Only 7 students were absent because they did not finish an assignment.
- E** Less than one-fourth of the students were absent because they overslept.


Question 7 

Residents from five districts of a city were asked whether they were in favor of a city proposal to create new bike lanes in the roads. The following bar chart shows the relative frequency in each district of those who responded that they were in favor of the proposal.

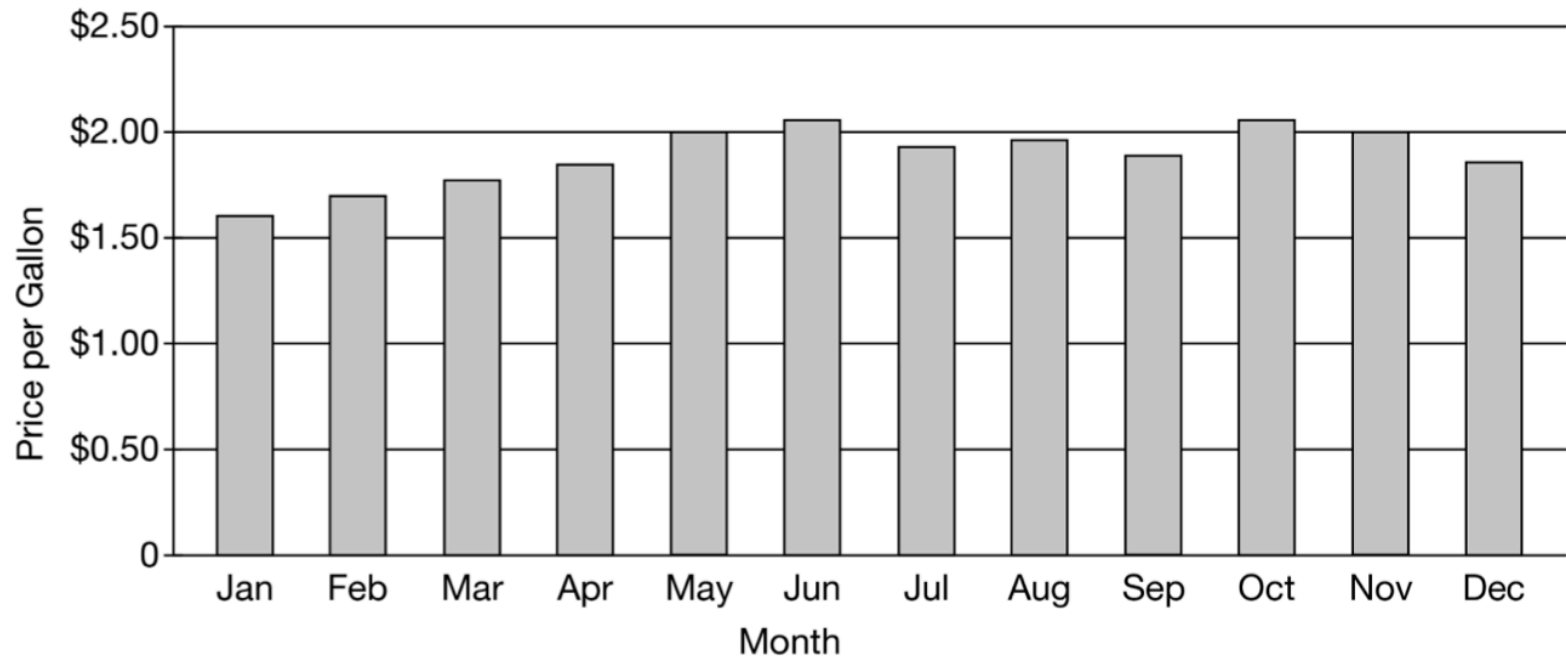


Which of the following statements is supported by the bar chart?

- A** District 2 has the greatest number of residents who are in favor of the proposal.
- B** District 1 has the least number of residents who are in favor of the proposal.
- C** All districts show at least 60% of residents in favor of the proposal.
- D** In 3 districts, less than half of the residents were in favor of the proposal.
- E** District 2 has the greatest percentage of residents who are in favor of the proposal.

Question 8 

The following bar chart shows the average price per gallon of gasoline for each month in 2004.

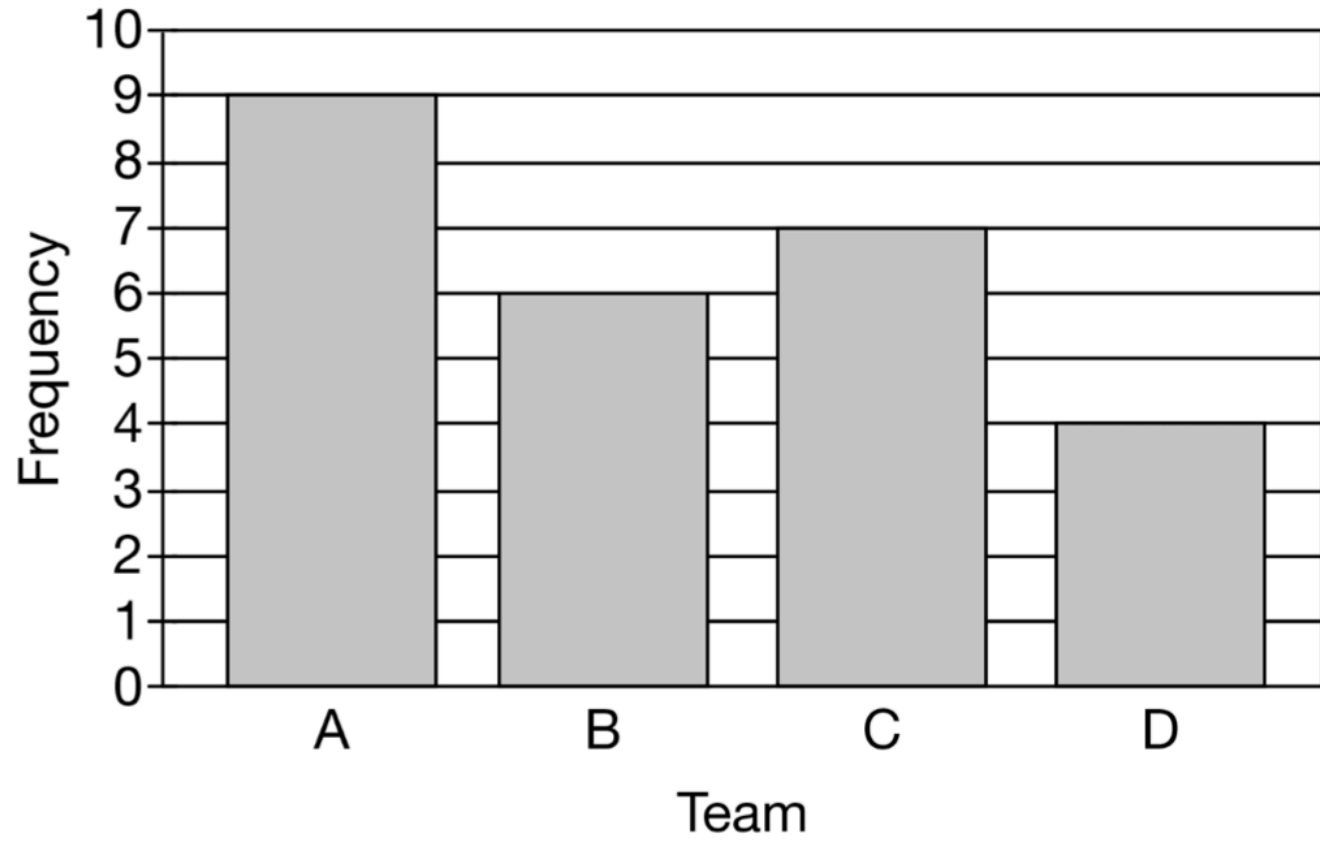


Which of the following statements is not supported by the bar chart?

- A** The gas price was highest in June and October.
- B** The gas price increased each month from January through June.
- C** All months had gas prices greater than \$1.50 per gallon.
- D** The gas price was lowest in February.
- E** The September gas price was higher than the January gas price.

Question 9 

The following bar chart shows the number of wins for four middle-school basketball teams. Each team played 12 games.



Which of the following statements is not supported by the bar chart?

- A** Team A won 75% of its games.
- B** Team B won 60% of its games.
- C** Team C won 7 games.
- D** Team D won less than half its games.
- E** Team C won 2 fewer games than Team A.

Question 10 

The following table shows the numbers of students in grades 7 and 8 at a middle school who are participating in extracurricular activities.

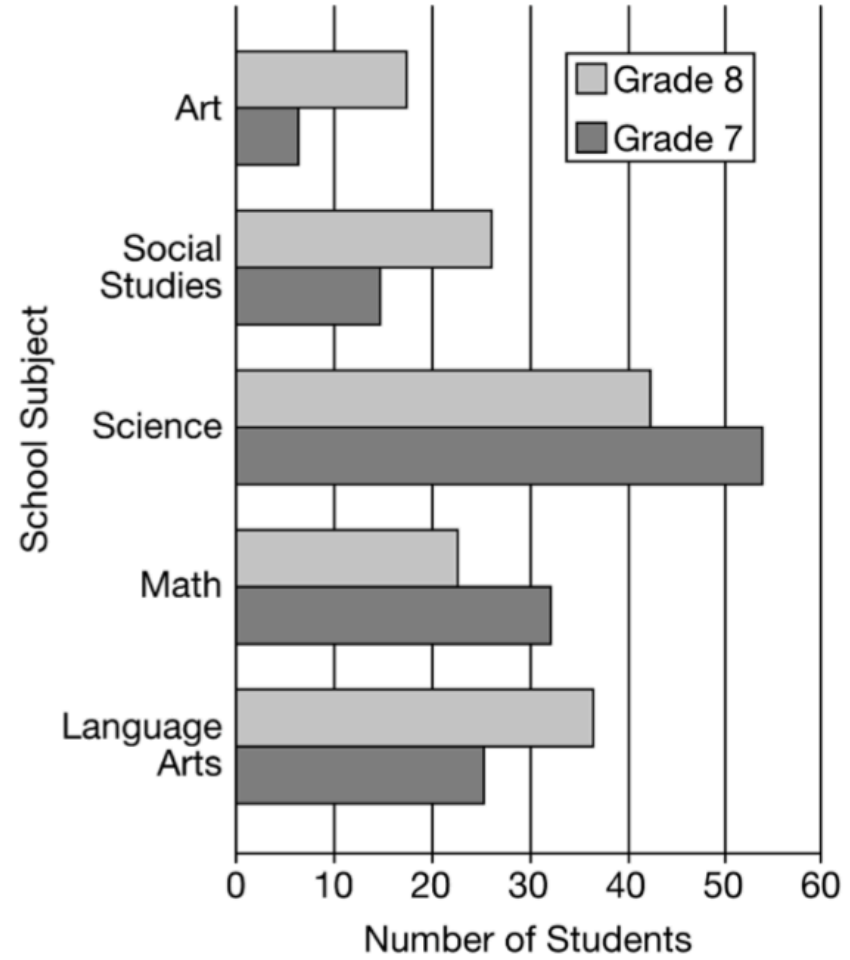
	Band	Chorus	Chess Club	Drama Club	School Newspaper
Grade 7	15	22	8	16	10
Grade 8	16	20	10	25	15

Which of the following statements is supported by the table?

- A** Each activity has more grade 8 students than grade 7 students.
- B** The number of students in Band is less than the number of students in the Chess Club.
- C** The total number of grade 7 students is greater than the total number of grade 8 students.
- D** The number of students in the Drama Club is more than twice the number of students in the School Newspaper.
- E** The activity with the greatest number of students is Chorus.

Question 11 

A group of middle school students were asked which school subject was their favorite. The results are displayed by grade of student in the following bar chart.

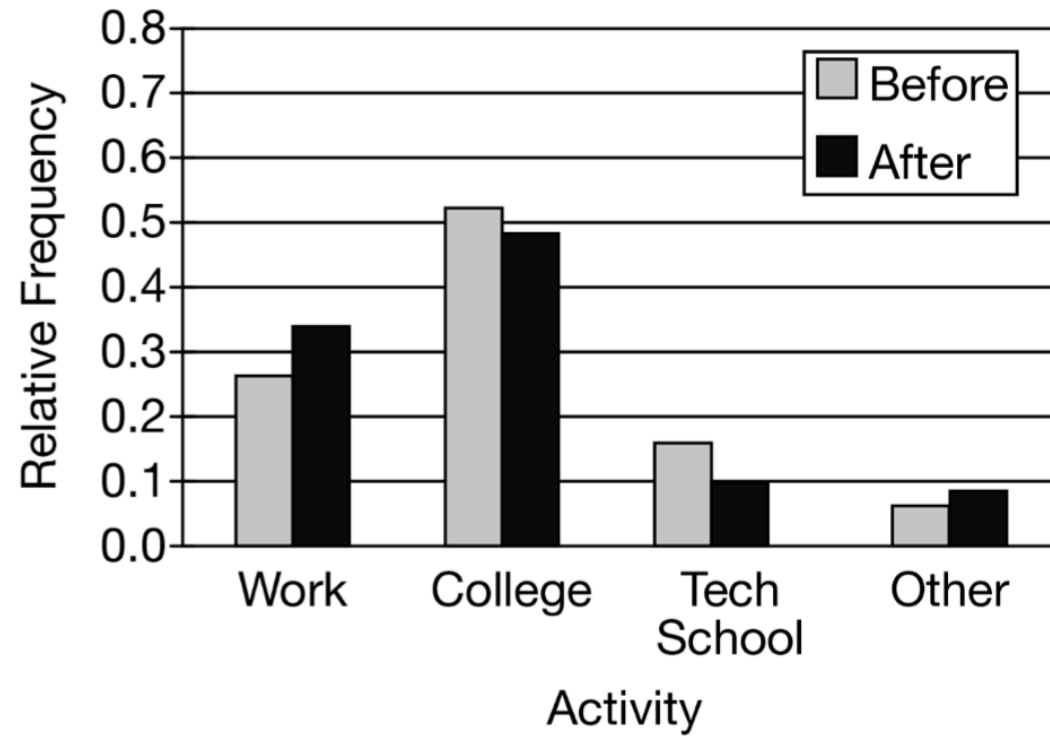


Which of the following statements is supported by the bar chart?

- A** For students who chose art, the number of grade 8 students was at least 100% greater than the number of grade 7 students.
- B** For students who chose social studies, the number of grade 8 students was at least 100% greater than the number of grade 7 students.
- C** For students who chose science, the number of grade 8 students was at least 50% less than the number of grade 7 students.
- D** For students who chose math, the number of grade 8 students was at least 50% less than the number of grade 7 students.
- E** For students who chose language arts, the number of grade 8 students was at least 100% greater than the number of grade 7 students.

Question 12 

Just before graduation, a random sample of high school seniors were asked what their plans were for the coming year. A year after graduation, those same individuals were asked what their main activity was in the year since graduation. Their responses are shown in the following bar chart.



Which of the following statements is supported by the bar chart?

- A** The percentage of students who selected Work as their main activity increased after graduation.
- B** The percentage of students who selected College as their main activity increased after graduation.
- C** Before graduation, there is no activity that greater than 50% of the students selected.
- D** Before graduation, the percentage of students who selected Tech School as their main activity was greater than the percentage who selected Work as their main activity.
- E** After graduation, the percentage of students who selected College as their main activity was twice the percentage of those who selected Work as their main activity.

Question 13 

Which of the following variables for data about a track team is a discrete variable?

- A** The height of a team member
- B** The weight of a team member
- C** The number of times that a team member finished first in a race
- D** The time recorded for the last race that was run by a team member
- E** The time recorded for a one-mile race by a team member

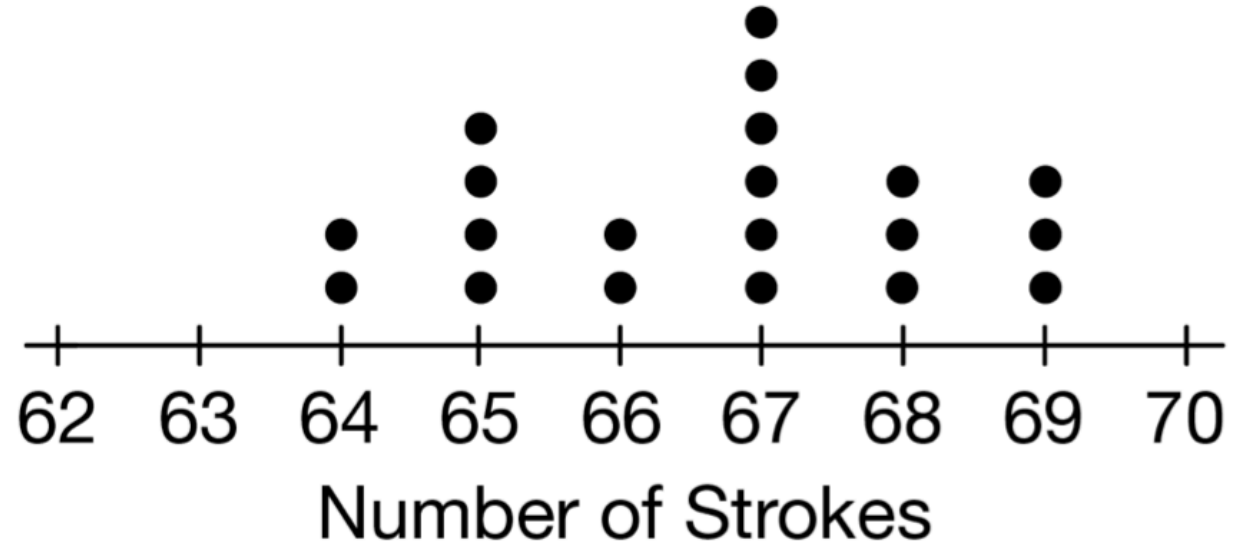
Question 14 

The traffic engineer for a large city is conducting a study on traffic flow at a certain intersection near the city administration building. The engineer will collect data on different variables related to the intersection each day for ten days. Of the following variables, which will be measured using continuous data?

- A** The number of cars passing through the intersection in one hour
- B** The number of pedestrians crossing the intersection in one hour
- C** The number of bicyclists crossing the intersection in one hour
- D** The number of food trucks that park within four blocks of the intersection
- E** The number of minutes for a car to get from the intersection to the administration building

Question 15 

The following dotplot shows the number of strokes taken by 20 professional golfers competing at an 18-hole golf course.

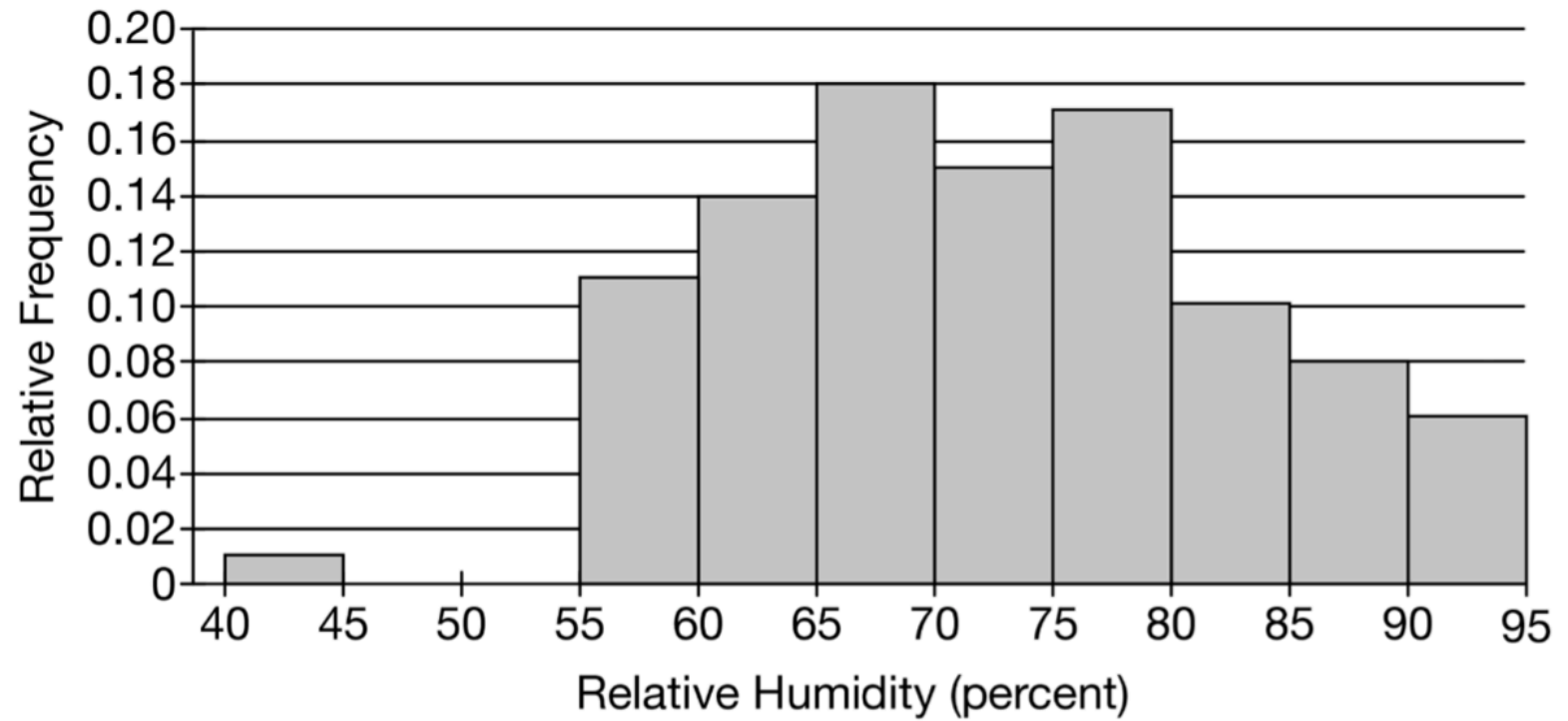


Which of the following best describes the type of variable represented in the dotplot?

- A Quantitative and discrete
- B Quantitative and continuous
- C Categorical and discrete
- D Categorical and continuous
- E Quantitative and categorical

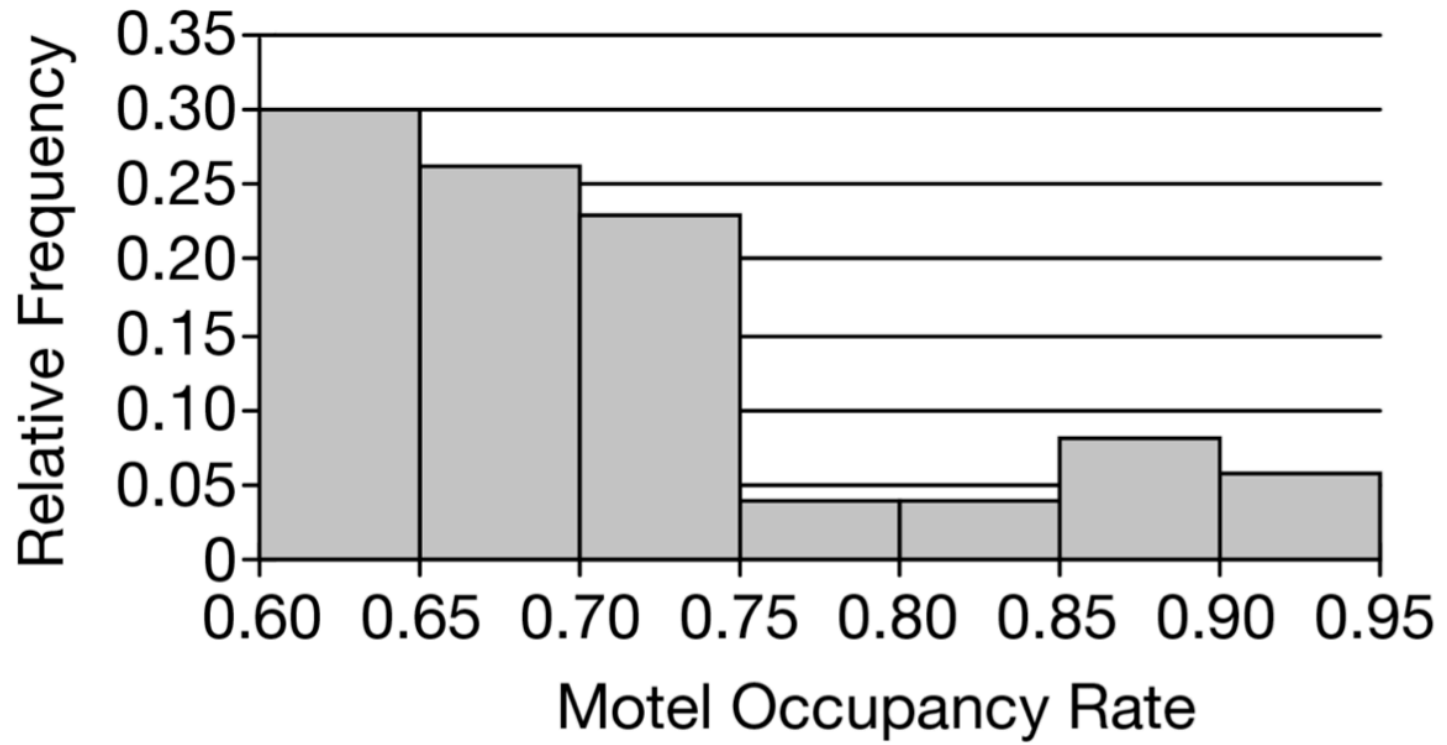
Question 16

Relative humidity is a measure, expressed as a percentage, of the amount of water vapor present in air. The following histogram summarizes the relative humidity, at noon, for a random sample of 100 days for a certain city.



Based on the histogram, which of the following is the best description of the distribution?

- A** The distribution displays a gap with a potential outlier located between 40% and 45%.
- B** The distribution displays a gap with potential outliers located between 90% and 95%.
- C** The distribution displays a gap with potential outliers located between 70% and 75%.
- D** The distribution displays two clusters with no apparent outliers.
- E** The distribution is uniform.

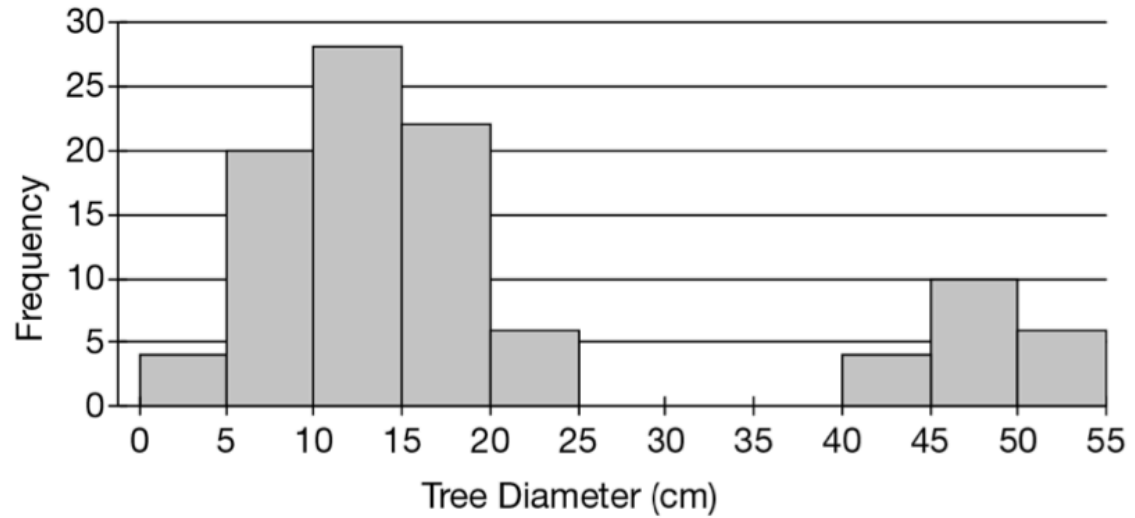


The occupancy rate of a motel is the percentage of rooms that are occupied on a particular night. The histogram shown summarizes the occupancy rates for a random sample of 100 nights for a motel. Based on the histogram, which of the following best describes the shape of the distribution of occupancy rates?

- A Skewed to the left
- B Skewed to the right
- C Symmetric
- D Bimodal
- E Uniform

Question 18 

The diameter, in centimeters (cm), of each tree in a random sample of trees in a forest was measured. The histogram shown summarizes the diameters.



Which of the following is the best description of the distribution?

- A The distribution consists of two clusters and a gap.
- B The distribution is approximately normal.
- C The distribution is symmetric with a skew to the right.
- D The distribution is skewed to the left.
- E The distribution is uniform.