



Data Analysis

- 1 What is the median of this data set?
39, 41, 50, 52, 5, 46, 35, 27, 69, 69

A	35	B	64
C	52	D	43.5

- 2 Find the mean of these numbers

2, 8, 19, 3

A	13	B	11	C	5
D	3	E	10	F	8

- 3 Find the mode of the numbers (8, 5, 12, 9, 4, 6, 7, 8) using the guide

5 6 7 8 8

two 8s

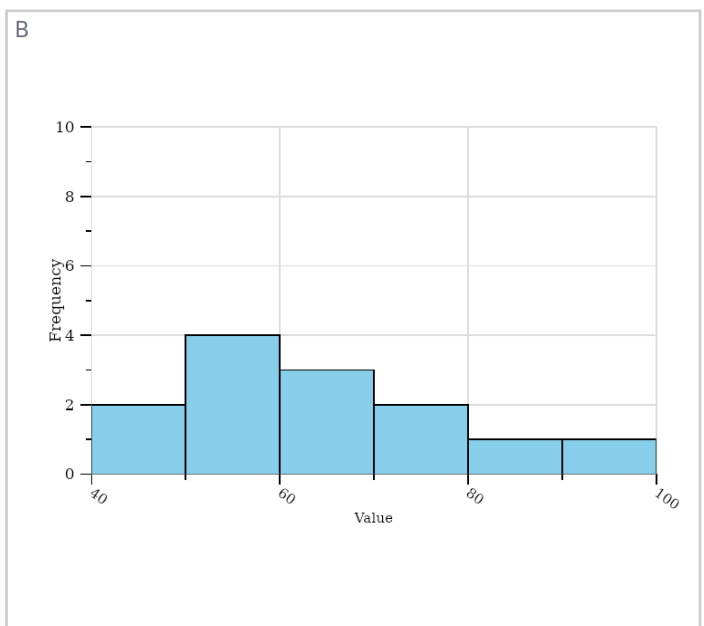
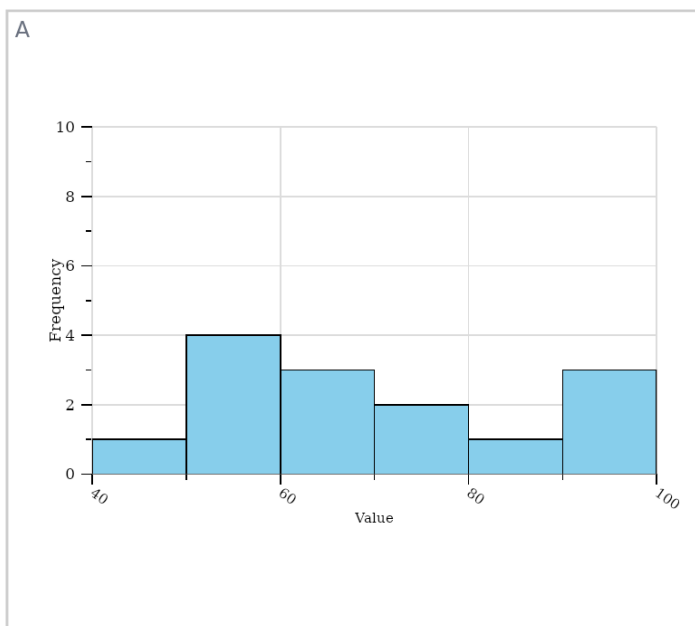
A	12	B	9	C	4
D	3	E	8	F	10

- 4 Would the mean or the median be a better measure of center for this data set?

Data set: 26, 24, 24, 74, 31, 25

A	Mean	B	Median
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- 5 Which histogram best matches this frequency table?

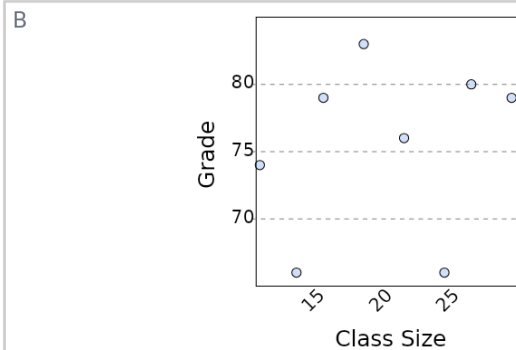
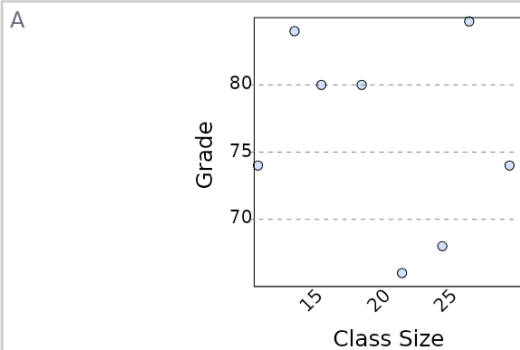




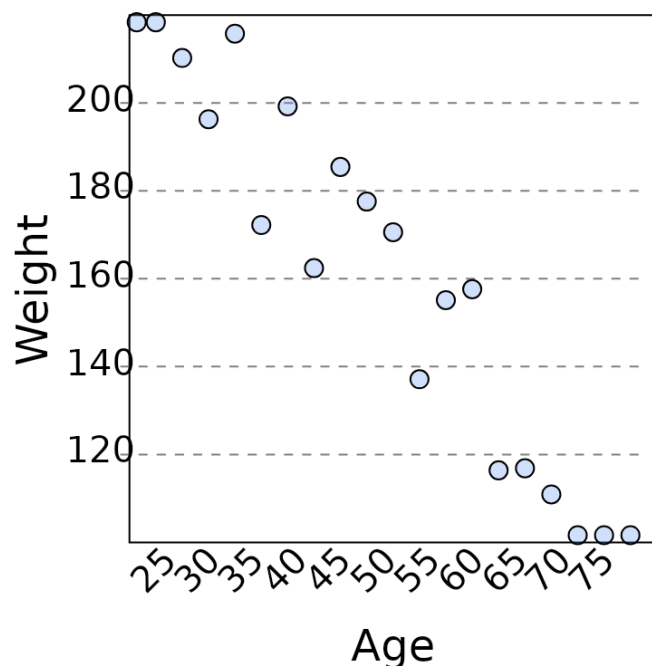
Data Analysis

6 Which scatter plot matches this data set?

Class Size	Grade
10	74
13	66
15	79
18	83
21	76
24	66
26	80
29	79



7 What is the correlation direction and strength on this scatter plot?



A
strong positive correlation

B
no correlation

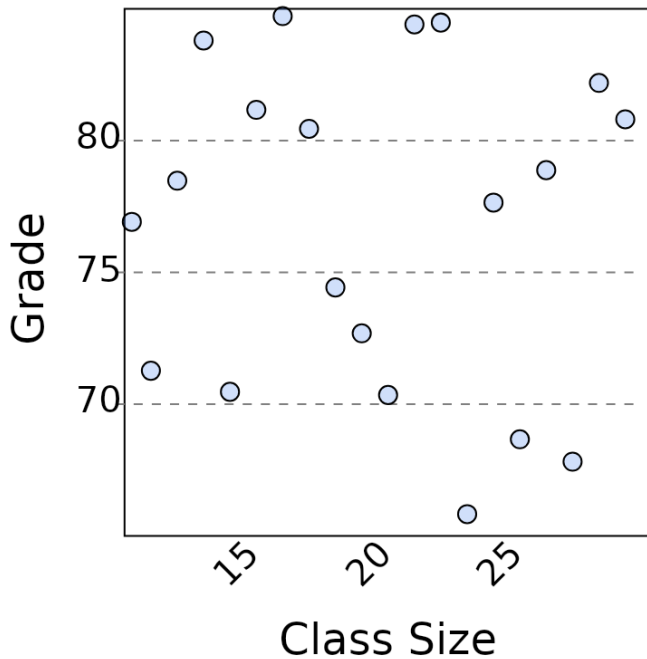
C
weak negative correlation

D
weak positive correlation



Data Analysis

8 What trend does this scatter plot show?



A

No association between class size and grade

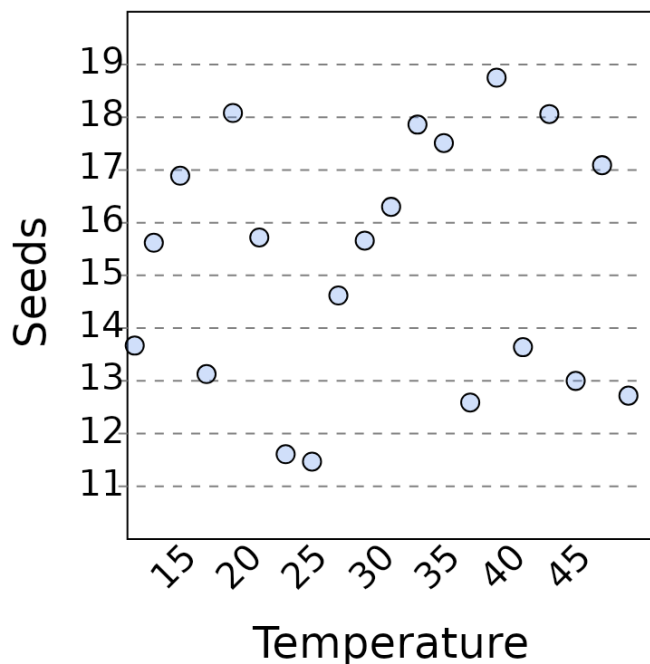
B

As class size increases, grade increase

C

As class size increases, grade decrease

9 What is the association on this scatter plot?



A

positive association

B

no association

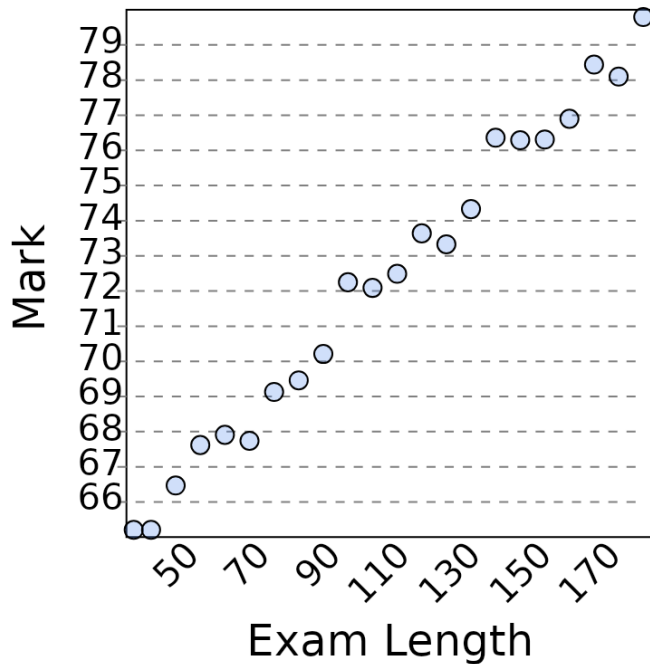
C

negative association



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10 What is the correlation strength on this scatter plot?



A

no correlation

B

strong correlation

C

weak correlation

11 How is this variable best classified?

Height of a randomly selected student

A Quantitative (continuous)

B Quantitative (discrete)

C Qualitative

12 Which of these variables is best classified as qualitative?

Qualitative

A Reaction time of a video game player

B Brand of smartphone owned

C Fuel consumed during a road trip

13 Is this variable qualitative or quantitative?

Number of books borrowed from a library

A Qualitative

B Quantitative

14 Which of these variables is quantitative?

Quantitative

A Eye colour of a randomly selected person

B Blood type of a patient

C Number of pets owned by a household



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15 Is this random variable discrete or continuous?

Time required to complete a marathon

A

Discrete

B

Continuous

16 Is this sample representative of the population?

Population: All homes in a province **Sample:** 1,000 homes built within the past five years

A

Yes, it is representative of the population

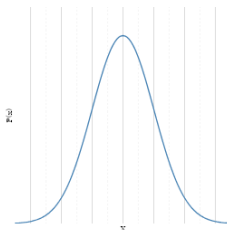
B

No, it is not representative of the population

17 Which model could represent this random variable's probability distribution?

Text messages received during the afternoon

A



B

X	$P(X)$
X_1	$P(X_1)$
X_2	$P(X_2)$
X_3	$P(X_3)$

18 Which sample is most representative of this population?

Population: All lakes in a province

A

150 lakes with public boat launches

B

150 lakes randomly selected from across the province

19 Why does this sampling approach introduce bias?

Goal: Percentage of students who walk to school
Sampling approach: Survey students arriving through the front entrance

A

Students arriving through other entrances or by bus may be underrepresented.

B

Students entering through the front entrance may remember their route to school more accurately than other students.



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20 Why is this survey question problematic?

Survey question: How many times do you usually visit the gym each week?

A The question may not apply to everyone because it assumes respondents go to a gym.

B The question may not apply to everyone because gym memberships vary in cost.

21 What is the main problem with this survey question?

Survey question: Wouldn't lower gas prices help everyone?

A Recall bias

B Assumption

C Missing response options

D Leading question

22 What type of bias does this sampling approach introduce?

Goal: Support for a new workplace policy
Sampling approach: Ask employees to respond to an optional anonymous survey

A Response bias

B Voluntary response bias

C Selection bias

D Undercoverage bias

23 What is the best way to collect this data?

Goal: Amount of rainfall during a storm

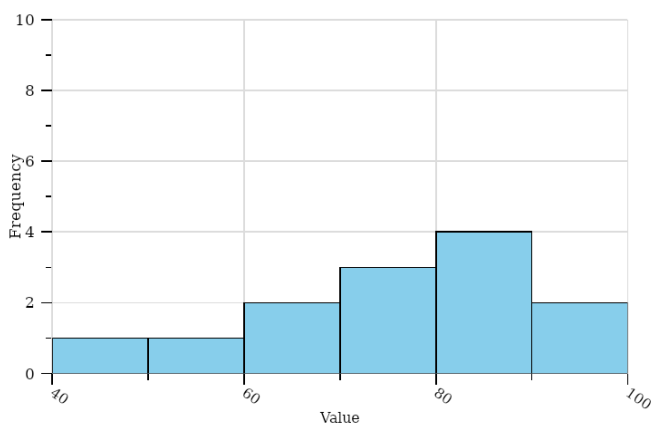
A Measure rainfall using rain gauges placed around the area.

B Ask residents to estimate how much rain fell and compare their estimates with those from other neighbourhoods.

C Estimate rainfall from puddle sizes afterward.

D Count umbrellas being used during the storm.

24 What is the distribution type of this histogram?



A right-skewed

B uniform

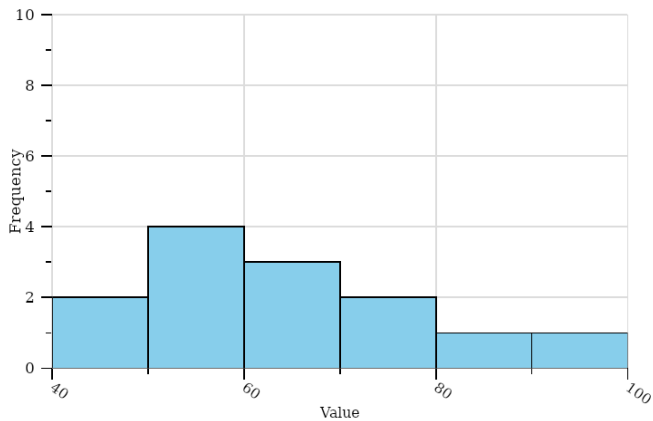
C left-skewed

D approximately symmetric



Data Analysis

25 What is the modal class?



A

[50, 60)

B

[60, 70)

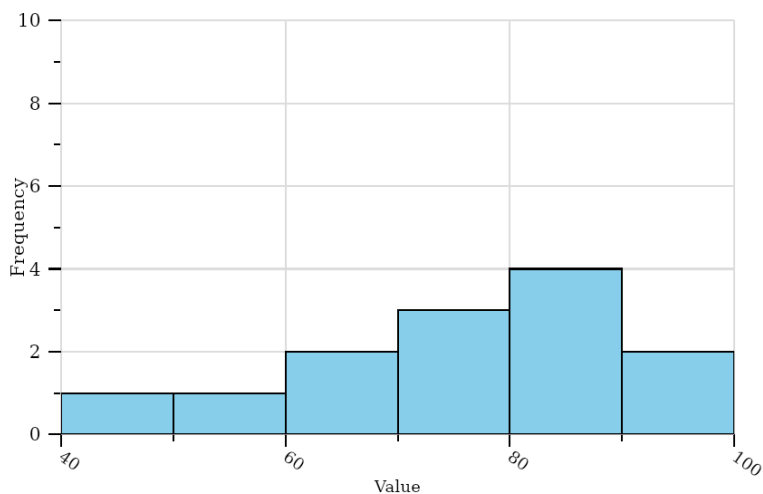
C

[70, 80)

D

[40, 50)

26 Estimate the median from this histogram.



A

106

B

56

C

96

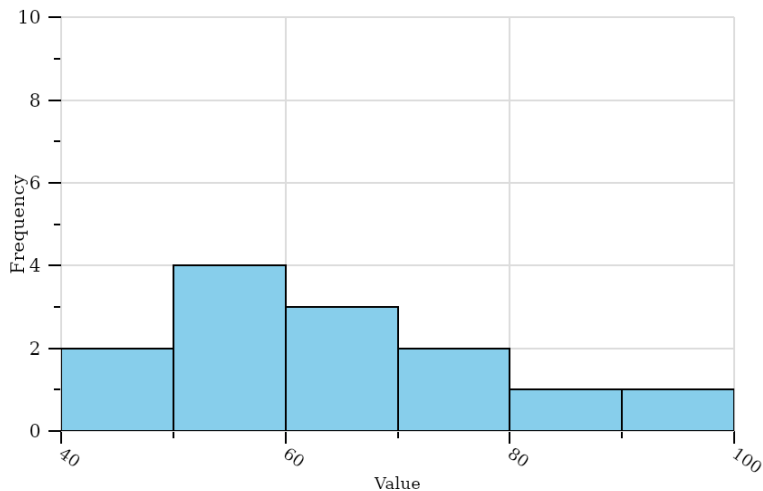
D

76



Data Analysis

27 Estimate Q1 from this histogram.



A

31.5

B

51.5

C

71.5

D

81.5

28 Is this study an experiment or an observational study?

Scientists randomly choose weather stations across the province, measure daily temperatures, and compare them with electricity usage.

A

Experiment

B

Observational study

29 Which of these studies is an observational study?

Observational study

A survey randomly selects high school students and records their favourite school subject and extracurricular activities.

Researchers have one group exercise three days per week and another group exercise five days per week, then compare improvements in fitness.