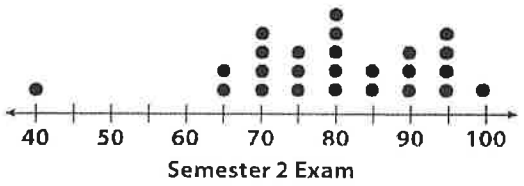
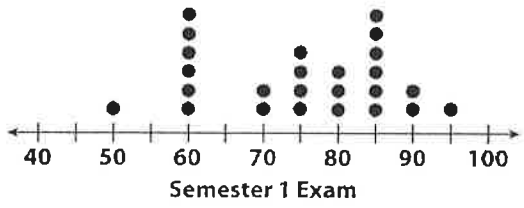


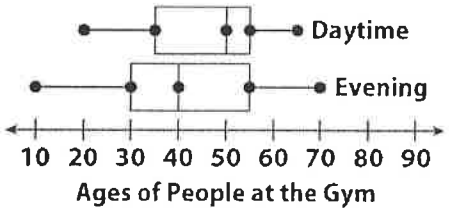
UNIT 5 **Statistics**
Unit Test: C

Use the dot plots for 1 and 2.



- What are the means for the Semester 1 exam and the Semester 2 exam?
 A 75 and 79.8
 B 75 and 80
 C 85 and 80
 D 95 and 100
- What is the difference in the medians of the two exams?
 A 5 points
 B 10 points
 C 15 points
 D no difference

Use the box plots for 3 and 4.



- What is the difference in the interquartile ranges of the two data sets?
 A 5 years
 B 10 years
 C 20 years
 D 25 years
- Which group has a greater mean age?
 A Daytime people
 B Evening people
 C They means are the same.
 D You usually cannot find means from box plots.

- A researcher used a sample median to estimate a population median. Then she decided her sample was biased. What can she conclude about the population median?
 A It is too small.
 B It is too large.
 C It is greater than the mean.
 D It may not represent the population.

- What must a sample be to be useful in making predictions about the population?
 A large
 B random
 C accurate
 D representative

- A toy company produces 1,250 toys per month. In January, 75 toys did not meet quality standards. The toy company generates a random sample to simulate 20 toys to inspect in February. The integers 1 to 75 represent toys that are below standard.

165	238	1066	1054	1103
1001	1248	607	699	403
944	229	1020	924	43
206	502	767	631	319

Based on this sample, how many toys will not meet quality standards in February?

- A 1
 B 63
 C 75
 D 150

- Which statement about the data is true?

City 1	City 2
65°, 68°, 63°, 55°, 59°, 78°, 70°, 75°, 72°, 75°, 71°, 68°	45°, 48°, 43°, 35°, 39°, 58°, 50°, 55°, 52°, 55°, 51°, 48°

- A The difference between the means is about 2 times the MAD.
 B The difference between the means is about 3 times the MAD.
 C The difference between the means is about 4 times the MAD.
 D The difference between the means is about 5 times the MAD.

UNIT
5 **Statistics**

9. Each cell in the table represents the average daily water usage in gallons by each house in one 15-block district of a town with 112 districts. A county agency uses a random sample to estimate the water usage of the entire town.

(601)	415	357	136	(525)
434	475	(352)	221	368
(324)	482	388	(415)	492

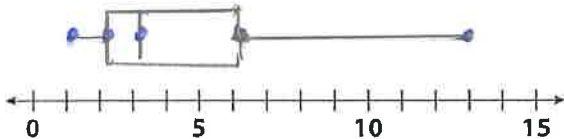
The circled numbers represent the random sample. What is the estimated daily water usage of the entire town?

49,660.8 gal

Use this random sample for 10–12.

Library Items Checked Out
7, 5, 2, 3, 13, 3, 2, 2, 3, 6, 1, 2, 6

10. Make a box plot to display the data.



11. Find the mean with and without the outlier.

with: 4.23 w/o: 3.5

12. Write a conclusion about the data.

Most people check out 2-3 items

13. Tia wants to find out how many people would support a new dog park in her community. She asks the first 3 people she sees walking a dog on her block, "Would you want a new dog park in town?" How can she redesign her survey so it is not biased?

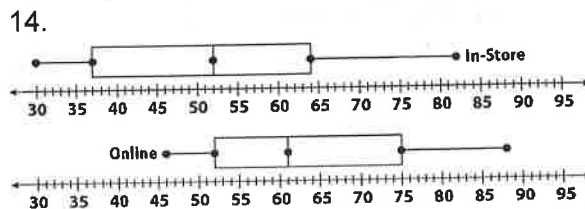
She should survey random people in her community, not just people walking dogs.

Use the two random samples for 14–16.

In-Store Purchases (\$)
37, 38, 30, 64, 80, 52, 56, 82, 71, 34, 46, 35, 48, 64, 53

Online Purchases (\$)
52, 64, 77, 60, 50, 80, 75, 52, 58, 65, 88, 46, 53, 61, 74

14. Use the two number lines below to make box plots to display each data set.



15. Find the means.

In-Store: \$52.67

Online: \$63.67

16. What can you infer by comparing these samples?

The online buyers tend to spend more.

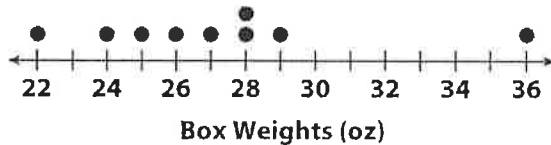
MODULE
10

Random Samples and Populations

Module Quiz: B

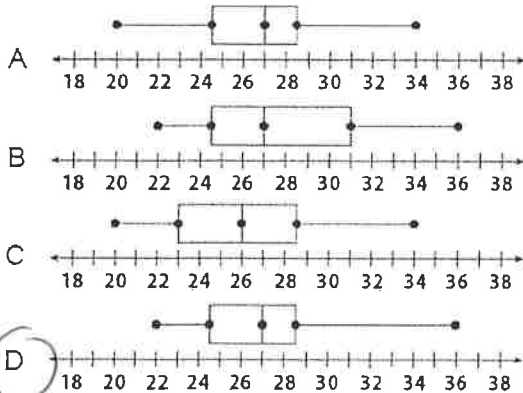
- Which of these statements best describes a biased sample?
 - A It is very small.
 - B It is not randomly chosen.
 - C It results in incorrect predictions.
 - D It does not accurately represent the population.
- In a survey about new bike paths, which group is least likely to be a biased sample?
 - A randomly chosen voters
 - B randomly chosen drivers
 - C randomly chosen dog-walkers
 - D randomly chosen gym members

Use the dot plot for 3–5.



A shipping manager weighed a random sample from a shipment of 90 boxes and made the dot plot above.

- Which range of weights has the greatest number of boxes?
 - A 22–25
 - B 25–29
 - C 28–30
 - D 30–36
- Which box plot shows the same data as the dot plot?



- Use the data to estimate the weight of all 90 boxes.
 - A 2,000 oz
 - B 2,500 oz
 - C 3,000 oz
 - D 3,500 oz
- A town has 35,000 registered voters. A random sample of 500 voters finds that 125 are in favor of a new dog park. How many are likely to vote for the dog park?
 - A 25
 - B 125
 - C 2,625
 - D 8,750
- Which could be the shape of a cross section of a cone?
 - A triangle
 - B rectangle
 - C pentagon
 - D square

Use the information below for 8–9.

A baker produces 500 loaves a day. On Monday, 50 loaves did not meet quality standards. The baker generates a random sample to simulate 10 loaves to inspect on Tuesday. The integers 1 to 50 represent sub-standard loaves.

351	207	148	428	272
121	47	205	56	4

- Based on this sample, how many loaves will not meet quality standards on Tuesday?
 - A 2
 - B 20
 - C 100
 - D 150
- What is the difference between the number of sub-standard loaves produced on Monday and the number predicted to be sub-standard on Tuesday?
 - A 10
 - B 50
 - C 100
 - D 200
- A circle has a diameter of 50 meters. What is its circumference?
 - A 50 m
 - B 157 m
 - C 314 m
 - D 625 m

MODULE
10

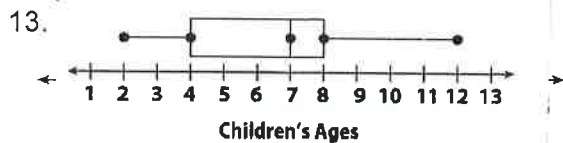
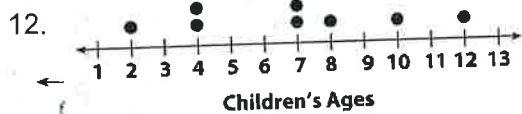
Random Samples and Populations

11. A principal wants to find out if her school needs more bike racks. A survey is taken of 30 students who ride the bus. Why might the sample be biased? Describe a sample that is more representative of the entire school.

Students who ride bikes to school are not represented in the sample
Select 30 students at random in lunchroom

Children's Ages
7, 4, 7, 7, 2, 10, 12, 8, 7, 4

The data set shows the ages of a random sample of children under 14 years of age.



14. What is the age range and the most common age?

2-12 yrs ; 7 yrs

15. What is the median age?

7 years

16. Is a child in this building whose age is under 14 more likely to be younger than 7 or older than 7?

Equally likely

17. Name two possible shapes that could be the cross section of a rectangular prism.

Rectangle
Square

Use the information below for 18–19.

In a shipment of 2,000 beach balls, 150 are defective. The manufacturer generates a random sample to simulate 20 beach balls to inspect in the next shipment. The integers 1 to 150 represent defective beach balls.

42	1701	638	397	113
1243	912	380	769	1312
76	547	721	56	4
1411	1766	677	201	1840

18. Based on this sample, how many defective beach balls might the manufacturer expect in the next shipment?

500

19. What is the difference between the number of defective beach balls in the actual shipment and the number predicted in the next shipment?

350

20. A round swimming pool has a radius of 12 feet. What is its circumference?

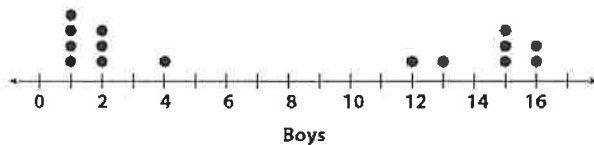
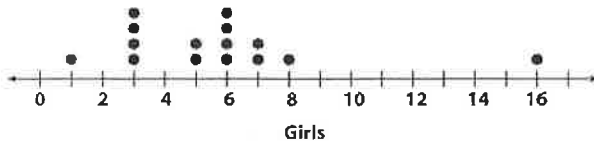
75.36 ft.

MODULE
11

Analyzing and Comparing Data

Module Quiz: B

Use the dot plots for 1 and 2.

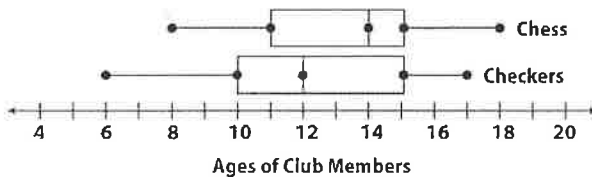


The dot plots compare the number of raffle tickets sold by boys and girls during a school fundraiser.

- Which plot has an outlier?
 - Girls
 - Boys
 - both plots
 - neither plot
- What is the difference between the medians for the two data sets?

A 0 tickets	C 4 tickets
<input checked="" type="radio"/> B 2 tickets	D 6 tickets

Use the box plots for 3 and 4.



- What is the interquartile range for the Checkers Club?

A 4	C 10
<input checked="" type="radio"/> B 5	D 11
- Which data set shows a greater spread?
 - Chess Club
 - Checkers Club
 - They have the same spread.
 - You cannot tell from the box plots.

- Kiana is making a recipe. She pours $3\frac{1}{3}$ cups of flour into a bowl. Then she adds $1\frac{1}{4}$ cups of nuts. What is the total amount of ingredients in the bowl?

- | | |
|-----------------------|---|
| A $2\frac{1}{6}$ cups | <input checked="" type="radio"/> C $4\frac{7}{12}$ cups |
| B $2\frac{3}{4}$ cups | D $5\frac{1}{12}$ cups |

Use the information below for 6 and 7.

Statistical measures are shown below for the number of hours per week spent doing homework by the students in two classes.

Class 1: Mean number of hours spent doing homework = 20, mean absolute deviation = 2

Class 2: Mean number of hours spent doing homework = 24, mean absolute deviation = 2

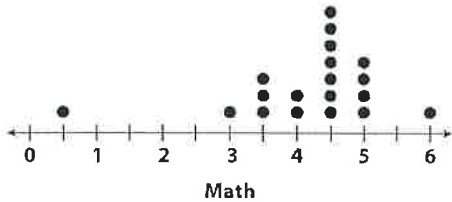
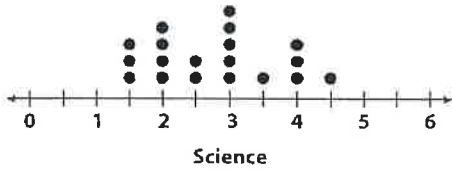
- What is the difference between the means for the two data sets?

A 2	C 6
<input checked="" type="radio"/> B 4	D 8
- Which statement about the data is true?
 - The difference of the means is equal to the mean absolute deviation.
 - The difference of the means is 1.5 times the mean absolute deviation.
 - The difference of the means is 2 times the mean absolute deviation.
 - The difference of the means is 4 times the mean absolute deviation.
- What is $11\frac{4}{5}$ written as a decimal?

A 11.4	<input checked="" type="radio"/> C 11.8
B 11.5	D 11.9

MODULE 11 Analyzing and Comparing Data

Use the dot plots for 9–11.



The dot plots show the number of hours students in two classes studied.

9. What percent of each class studied less than 4 hours?

Science: 78.9% Math: 26.3%

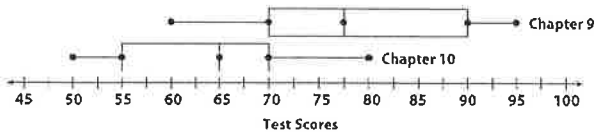
10. Find the medians.

Science: 3h Math: 4.5h

11. Compare the centers and spreads.

Math has a higher mean
and a wider spread

Use the box plots for 12–14.



12. Compare the medians.

Ch 9 = 77.5
Ch 10 = 65

13. Compare the spreads.

ranges: Ch 9 = 35 Ch 10 = 30
interquartile ranges: Ch 9 = 15
Ch 10 = 15

14. Write a conclusion.

Ch 10 was considerably more difficult for everyone

15. A painter is mixing blue, red, and white paint to make purple paint. He mixes 6.2 gallons of blue paint, 5.8 gallons of red paint, and 9.7 gallons of white paint. How many gallons of purple paint does he make?

21.7 gal

Average monthly temperatures for two cities are shown in the tables below. Use the data below for 16 and 17.

City 1
65, 68, 63, 55, 59, 78, 70, 75, 72, 75, 71, 68

City 2
75, 67, 55, 57, 65, 61, 65, 69, 62, 60, 68, 67

16. Calculate the means to the nearest whole degree.

City 1: 68 City 2: 64

17. What is the difference in the means? What is the difference of the ranges?

Means = 4 ranges = 3

18. What is $5\frac{2}{8}$ written as a decimal?

5.25