

MODULE
10

Random Samples and Populations

Module Quiz: B

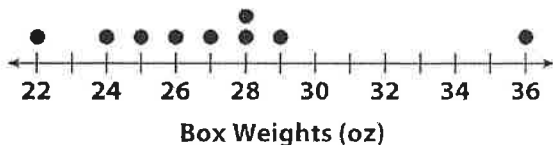
- Which of these statements best describes a biased sample?
 - It is very small.
 - It is not randomly chosen.
 - It results in incorrect predictions.
 - It does not accurately represent the population.
- In a survey about new bike paths, which group is least likely to be a biased sample?
 - randomly chosen voters
 - randomly chosen drivers
 - randomly chosen dog-walkers
 - randomly chosen gym members
- Use the data to estimate the weight of all 90 boxes.

A 2,000 oz	C 3,000 oz
B 2,500 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	C 2,625
B 125	D 8,750
- Which could be the shape of a cross section of a cone?

A triangle	C pentagon
B rectangle	D square

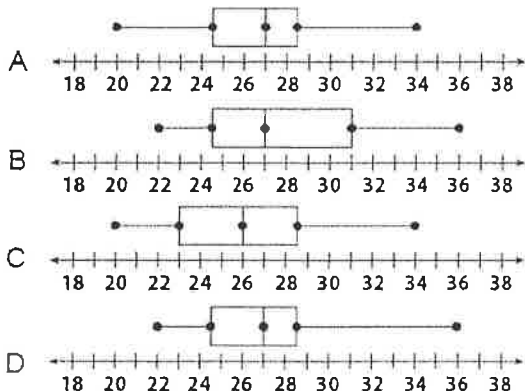
Use the dot plot for 3–5.



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	C 28–30
B 25–29	D 30–36
- Which box plot shows the same data as the dot plot?



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	C 100
B 20	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	C 100
B 50	D 200
- A circle has a diameter of 50 meters. What is its circumference?

A 50 m	C 314 m
B 157 m	D 625 m

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Random Samples and Populations

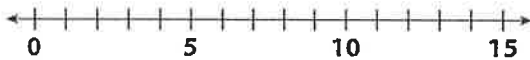
11. A principal wants to find out if her school needs more bike racks. A survey is taken of 30 students who ride the bus. Why might the sample be biased? Describe a sample that is more representative of the entire school.

Use the data set for 12–16.

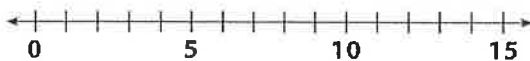
Children's Ages
7, 4, 7, 7, 2, 10, 12, 8, 7, 4

The data set shows the ages of a random sample of children under 14 who live in an apartment building.

12. Make a dot plot to display the data.



13. Make a box plot to display the data.



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

15. What is the median age?

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

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

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?

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

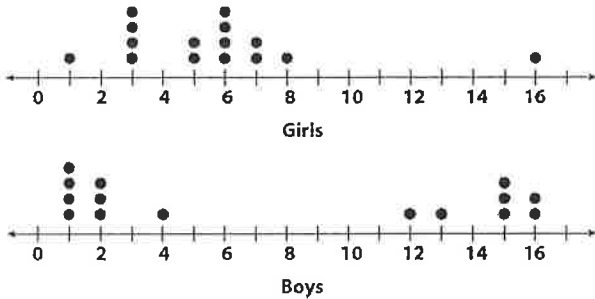
20. A round swimming pool has a radius of 12 feet. What is its circumference?

MODULE
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Analyzing and Comparing Data

Module Quiz: B

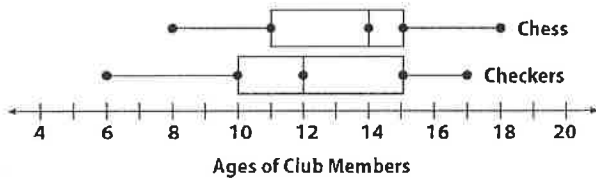
Use the dot plots for 1 and 2.



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

- Which plot has an outlier?
 - A Girls
 - B Boys
 - C both plots
 - D neither plot
- What is the difference between the medians for the two data sets?
 - A 0 tickets
 - B 2 tickets
 - C 4 tickets
 - D 6 tickets

Use the box plots for 3 and 4.



- What is the interquartile range for the Checkers Club?
 - A 4
 - B 5
 - C 10
 - D 11
- Which data set shows a greater spread?
 - A Chess Club
 - B Checkers Club
 - C They have the same spread.
 - D 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
 - B $2\frac{3}{4}$ cups
 - C $4\frac{7}{12}$ 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

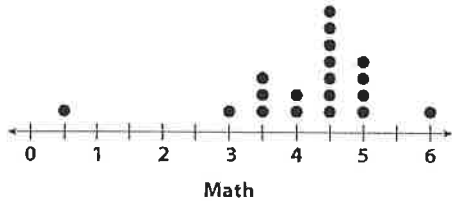
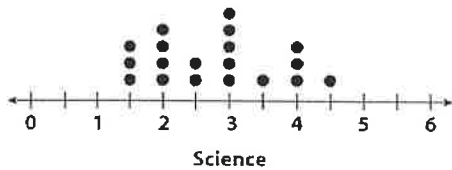
Class 2: Mean number of hours spent doing homework = 24, mean absolute deviation = 2

- What is the difference between the means for the two data sets?
 - A 2
 - B 4
 - C 6
 - D 8
- Which statement about the data is true?
 - A The difference of the means is equal to the mean absolute deviation.
 - B The difference of the means is 1.5 times the mean absolute deviation.
 - C The difference of the means is 2 times the mean absolute deviation.
 - D 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
 - B 11.5
 - C 11.8
 - D 11.9

MODULE
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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?

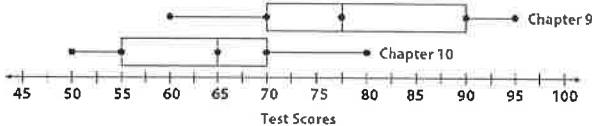
Science: _____ Math: _____

10. Find the medians.

Science: _____ Math: _____

11. Compare the centers and spreads.

Use the box plots for 12–14.



12. Compare the medians.

13. Compare the spreads.

ranges: _____

interquartile ranges: _____

14. Write a conclusion.

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?

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: _____ City 2: _____

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

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