

Lesson 11.3

TEKS
7.12A
7.15

Comparing Data Displayed in Box Plots

Q: How do you compare 2 sets of data displayed in box plots?

A: Compare the _____, the _____, and the _____ of the box plots.

Vocab

1. Box plot _____
or _____

box-and-whisker plot _____

2. Quartile _____

3. 1st Qu _____

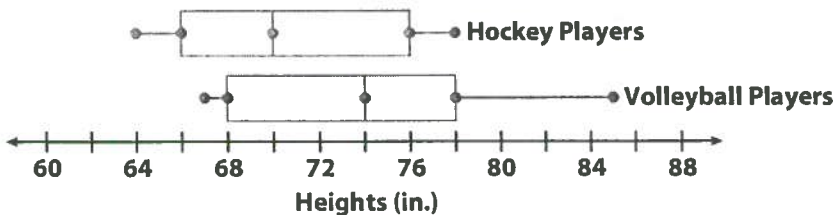
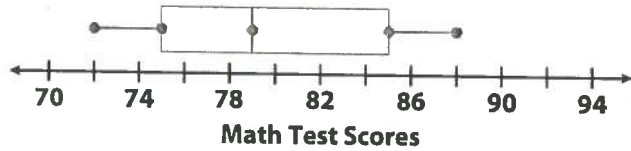
4. 3rd Quartile _____

5. IQR _____

Minimum = _____ Maximum = _____

Median = _____

Range = _____ IQR = _____



Which group has a greater median height? _____

Which group has the shortest player? _____

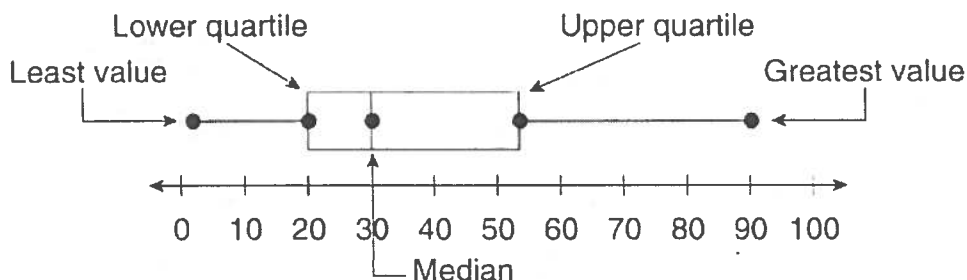
Which group has an interquartile range of about 10?

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Comparing Data Displayed in Box Plots

Reading Strategies: Use Graphic Aids

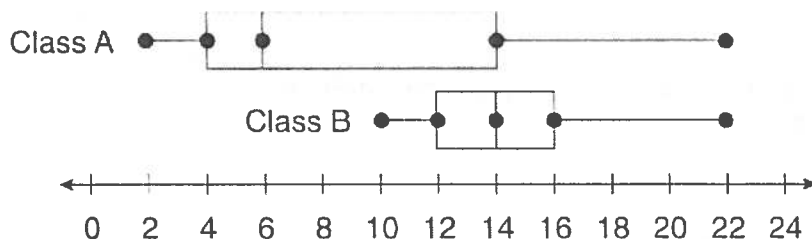
A **box plot** shows a set of data divided into four equal parts called **quartiles**. When you compare box plots, the quartiles are important features that sometimes allow for easier comparisons than central measures.



- The **median** score divides the set of data in half.
- The **box** shows the middle half of the data, or 50 percent of the data, from the lower to the upper quartile.
- The lines, sometimes called "whiskers," extending from the lower and upper quartiles to the least and greatest data point values, identify the rest of the data.
- Twenty-five percent of the data is below the lower quartile, and 25 percent of the data is above the upper quartile.

Answer the questions.

A crafts store offers two different knitting classes. The attendance for each class for 12 sessions is shown.



1. Which class has a greater median attendance? How much greater is it?

2. Which class appears to have a more consistent attendance?

3. Which class has an attendance of less than 14 people 75 percent of the time?

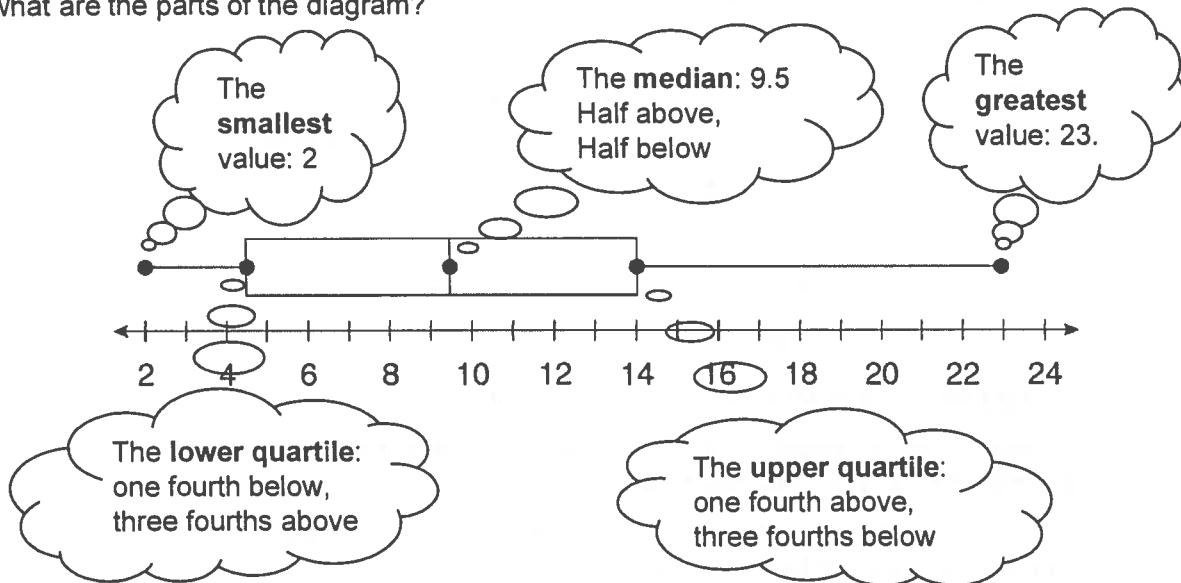
4. What percent of the time does Class B have an attendance greater than 16?

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Comparing Data Displayed in Box Plots
Success for English Learners

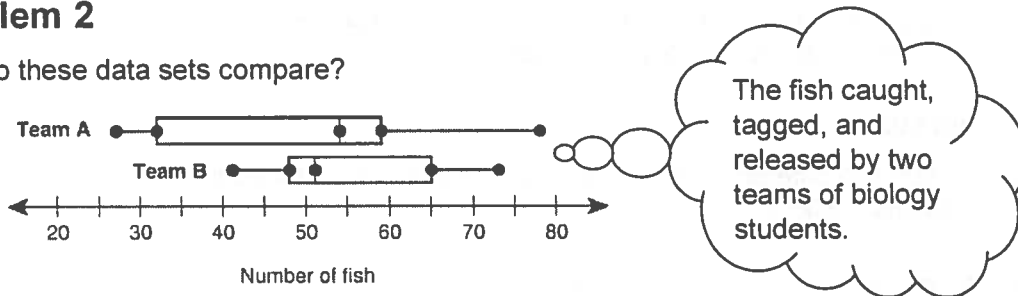
Problem 1

What are the parts of the diagram?



Problem 2

How do these data sets compare?



1. What does "one fourth above, three fourths below" mean in Problem 1?
(Hint: What percent is one fourth?)

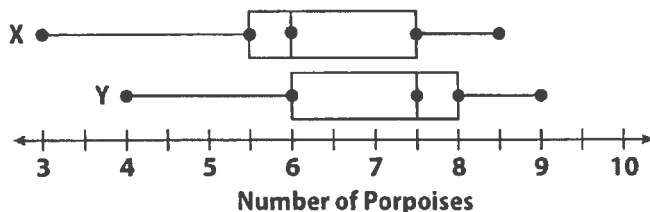
2. In Problem 2, which team caught the most fish *on average*?

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Comparing Data Displayed in Box Plots

Practice and Problem Solving: D

1.



- Which team of observers, X or Y, saw more porpoises per observation *on average* based on this sample?

- Both teams made 20 observations of porpoises. How many times did Team Y observe 6, 7, or 8 porpoises? Explain your answer.

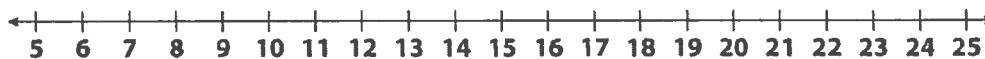
- What percent of the time would Team X see between 3 and 6 porpoises?

Use the description and data given below to complete Exercises 5–10. The first question after the drawing is done for you.

The points scored by a basketball player for eight games are:

6, 10, 12, 14, 16, 18, 20, and 23.

- Draw a box plot of the data in the space provided.



- What is the range of the data? 17 points
- What is the median of the data? _____
- What are the first and third quartiles?
1st quartile: _____ 3rd quartile: _____
- What is the interquartile range? _____
- Describe the distribution of the data.

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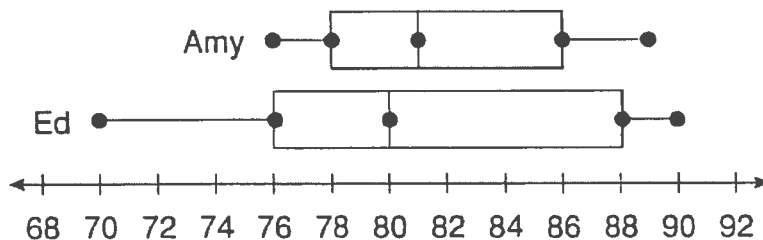
Comparing Data Displayed in Box Plots

Practice and Problem Solving: A/B

1. Use the data to make a box-and-whisker plot. 24, 32, 35, 18, 20, 36, 12

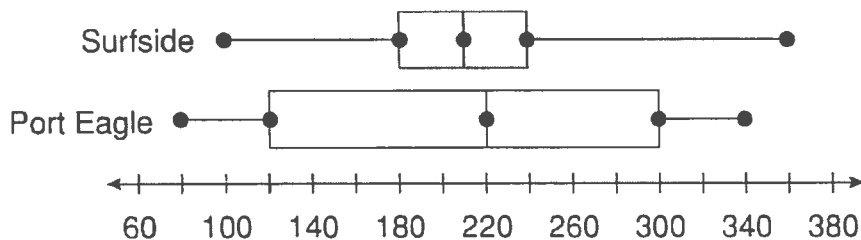


The box-and-whisker plot shows the test scores of two students. Use the box-and-whisker plot for Exercises 2–5.



2. Which student has the greater median test score? _____
3. Which student has the greater interquartile range of test scores? _____
4. Which student has the greater range of test scores? _____
5. Which student appears to have more predictable test scores? Explain your answer.

The box-and-whisker plot shows prices of hotel rooms in two beach towns. Use the box-and-whisker plot for Exercises 6–8.



6. Which town has the greater median room price? _____
7. Which town has the greater interquartile range of room prices? _____
8. Which town appears to have more predictable room prices? Explain your answer.

Lesson 11.3

TEKS

7.12 A

7.1 E

Comparing Data Displayed in Box Plots

Q: How do you compare 2 sets of data displayed in box plots?

A: Compare the shapes, the centers, and the spreads of the box plots.

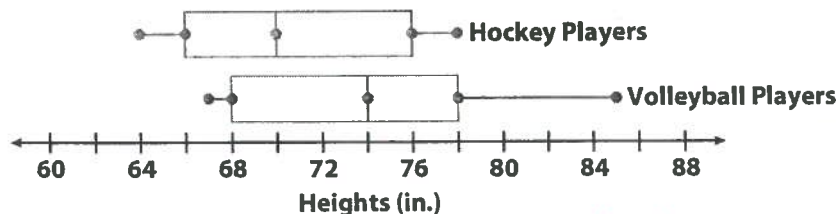
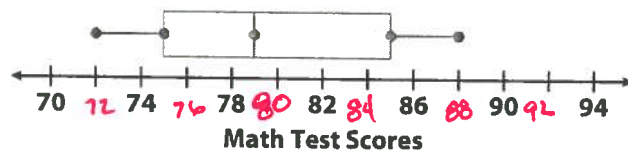
Vocab

1. Box plot or box-and-whisker plot A graph that shows how data points are distributed by using the median, quartiles, least, value and greatest value.
2. Quartile 3 values 1 of which is the median that divides a data set into 1/4's
3. 1st Qu Median of the lower 1/2 of the data set
4. 3rd Quartile Median of the upper 1/2 of the data set
5. IQR Interquartile range difference between the 1st + 3rd quartiles the difference from low side to high side of the box

Minimum = 72 Maximum = 88

Median = 79

Range = 16 IQR = 10



Which group has a greater median height? Volleyball players

Which group has the shortest player? Hockey Players

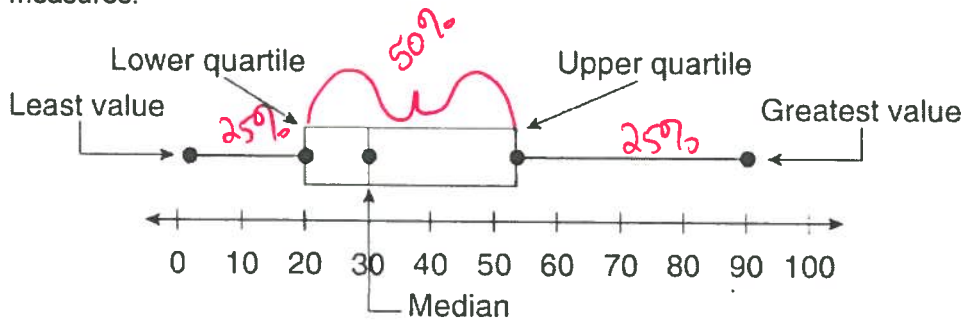
Which group has an interquartile range of about 10? Both,

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Comparing Data Displayed in Box Plots

Reading Strategies: Use Graphic Aids

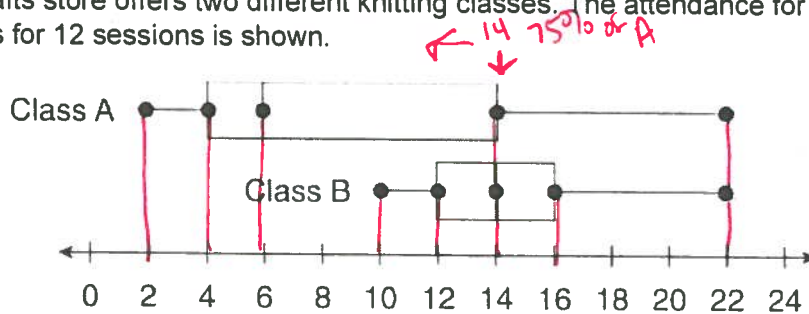
A box plot shows a set of data divided into four equal parts called **quartiles**. When you compare box plots, the quartiles are important features that sometimes allow for easier comparisons than central measures.



- The **median** score divides the set of data in half.
- The **box** shows the middle half of the data, or 50 percent of the data, from the lower to the upper quartile.
- The lines, sometimes called "whiskers," extending from the lower and upper quartiles to the least and greatest data point values, identify the rest of the data.
- Twenty-five percent of the data is below the lower quartile, and 25 percent of the data is above the upper quartile.

Answer the questions.

A crafts store offers two different knitting classes. The attendance for each class for 12 sessions is shown.

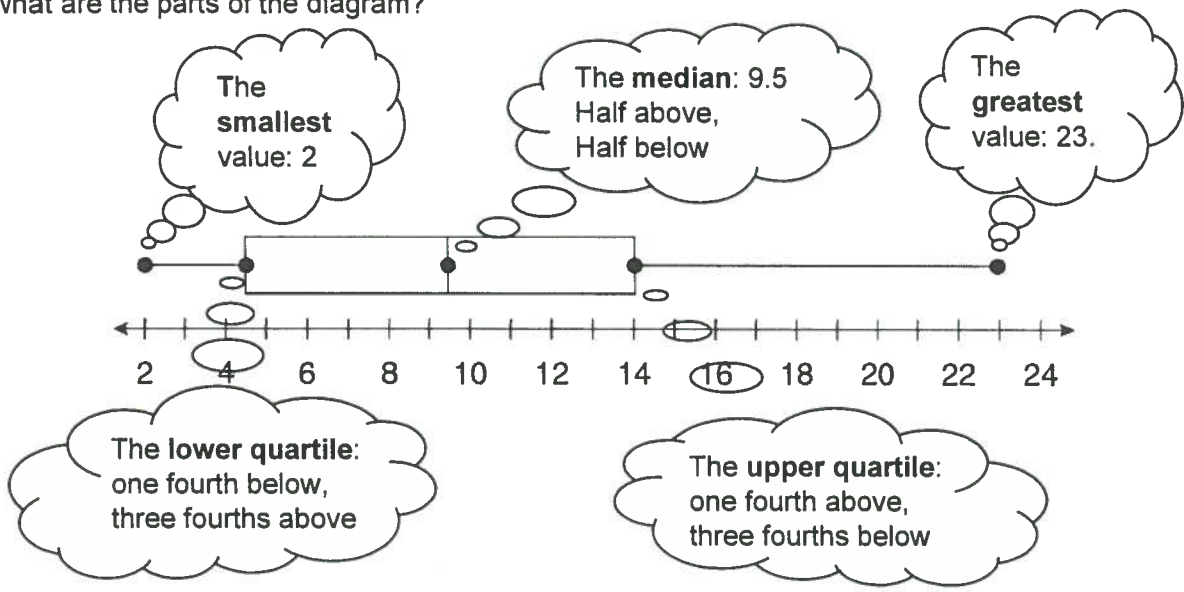


- | | |
|---|---|
| <p>1. Which class has a greater median attendance? How much greater is it?
<u>B</u> <u>14 - 6 = 8</u></p> <p>3. Which class has an attendance of less than 14 people 75 percent of the time?
<u>A</u></p> | <p>2. Which class appears to have a more consistent attendance?
<u>B</u></p> <p>4. What percent of the time does Class B have an attendance greater than 16?
<u>25%</u></p> |
|---|---|

LESSON 11-3 **Comparing Data Displayed in Box Plots**
Success for English Learners

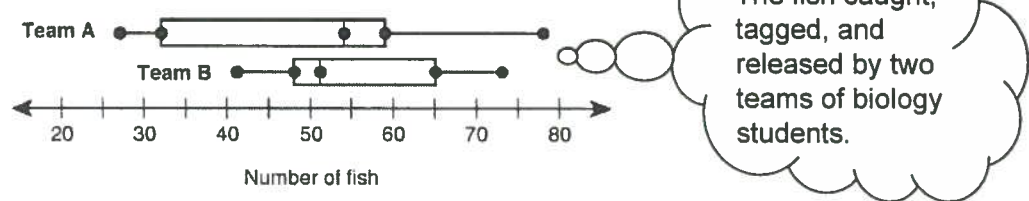
Problem 1

What are the parts of the diagram?



Problem 2

How do these data sets compare?



1. What does "one fourth above, three fourths below" mean in Problem 1?
 (Hint: What percent is one fourth?)

25% is above this & 75% is below this

2. In Problem 2, which team caught the most fish on average?

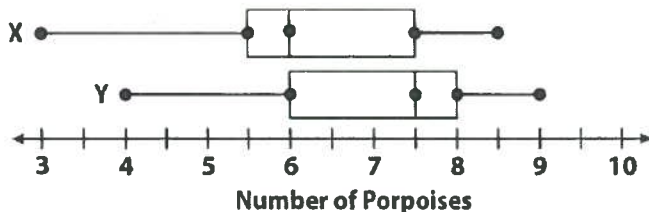
Average or 50% = 54 vs 51 TEAM A = 54

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Comparing Data Displayed in Box Plots

Practice and Problem Solving: D

1.



a. Which team of observers, X or Y, saw more porpoises per observation *on average* based on this sample?

Y

b. Both teams made 20 observations of porpoises. How many times did Team Y observe 6, 7, or 8 porpoises? Explain your answer.

20 50% of 20 = 10 b/c these are in the box 50% tile

c. What percent of the time would Team X see between 3 and 6 porpoises?

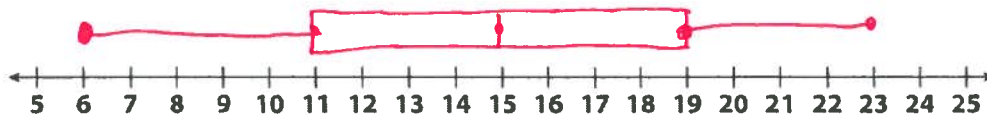
50%

Use the description and data given below to complete Exercises 5–10. The first question after the drawing is done for you.

The points scored by a basketball player for eight games are:

6, 10, 12, 14, 16, 18, 20, and 23.

2. Draw a box plot of the data in the space provided.



3. What is the range of the data? 17 points

4. What is the median of the data? 15

5. What are the first and third quartiles?

1st quartile: 11

3rd quartile: 19

6. What is the interquartile range? 19 - 11 = 8

7. Describe the distribution of the data.

almost symmetrical