Warm- up

eate a five number summary for the test score

35, 60, 65, 74, 81, 50, 100, 96, 91, 81, 77, 70

1. Min - 35
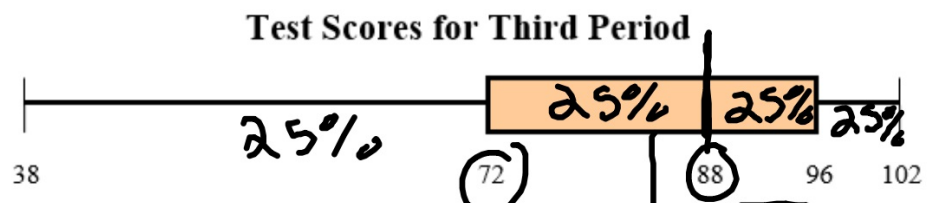2. Q1 - 62.5
3. Median - 75.5

4. Q3 - 86
5. Max - 100

eate a box and whisker plot for the data

For questions 1 – 6, refer to the box & whisker graph below which shows the test results of a ma

Test Scores for Third Period

(handwritten on graph) 25% 25% 25% 25%

38   72   88   96   102

(handwritten) 79.2

102

1. What was the high score on the test?

75%

2. What percent of the class scored above a 72?

88

3. What was the median score on the test?

25%

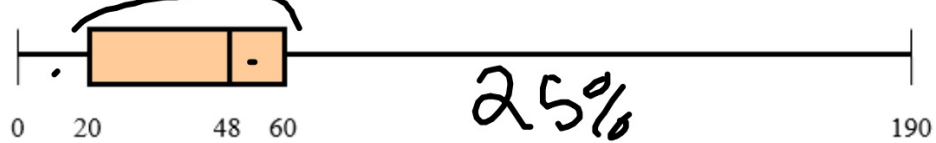4. What percent of the class scored between 88 & 96?

5. Do you think that this test was too hard for the students? Explain.

   No, most above 72

6. Would you expect the mean to be above or below the median? Explain.

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Average Minutes Per Night Sophomores Spent On Homework

0   20   48   60   190

25%

%7. What percent of the sophomores spend more than 60 minutes on homework per night?

) 8. What is the range of times that the middle 50% of the sophomores spend on homework

%9. What percentage of students spent more than 48 minutes a night on homework?

%10. What percent of the sophomores spend less than 20 minutes per night on homework?

Would you expect the mean number of minutes per night to be higher or lower than the median

63.6 > 48

ppose that one family kept track of how many DVDs they rented each month for a two year iod. The numbers for each month are shown in the table below.
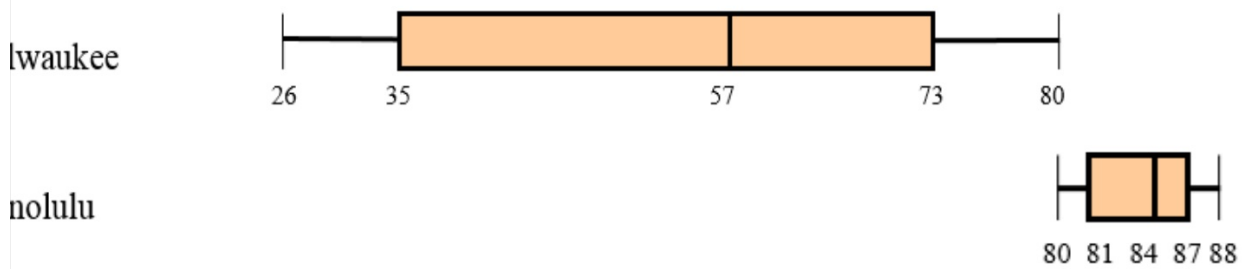
J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
3	5	2	8	1	5	0	3	6	4	9	15	3	6	4	1	10	3	8	7	2	9

te a five number summary for the data.

struct a box-and-whisker plot based on the data.

question 13, refer to the box & whisker graphs below that show the average monthly high temperature lwaukee, Wisconsin & Honolulu, Hawaii.

Average Monthly High Temperatures

lwaukee

26   35   57   73   80

nolulu

80 81 84 87 88

Write a short paragraph comparing the temperatures in both cities.

Measures of Spread

Measures of Spread

- Differences in spread can influence interpretation of the data set
- Range is a crude measure of spread
- Other measures of spread:
  - Interquartile Range
  - Standard Deviation

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Interquartile Range

Interquartile Range (IQR) is easy!

It's just the range between the quartiles!

$$IQR: Q3 - Q1$$

To find outliers, we use **1.5 IQR Rule**

Lower limit = Q1 – 1.5 • IQR
Upper limit = Q3 + 1.5 • IQR

If a value falls above the upper limit or below the lower limit, it is an outlier!

Example 1

Determine if there are any outliers in the following set:

87, 7, 41, 50, 15, 220, 23, 99, 11, 45, 11, 61, 3, 39, 21

$$Q1 = 11$$

$$Q3 = 61$$

$$IQR = Q3 - Q1$$
$$= 50$$

Upper Limit = $61 + 1.5$
$$= 136$$

Lower Limit = $11 - 1.5($

UL = 136   LL = -6

220 is only outli

You Try!

Determine if there are any outliers in the following set:

59, 27, 18, 78, 61, 91, 52, 34, 54, 93, 110, 87, 85, 82, 68

Standard Deviation

- Standard deviation is the average distance each data point is from the mean
- Standard deviation formula is complicated:

$$\sigma = \sqrt{\dfrac{\sum\limits_{i=1}^{n}(x_i - \bar{x})^2}{n-1}}$$

- Use the calculator!!
- Find the standard deviation for the following data:
    3, 4, 5, 6, 4, 2, 0, 8, 4

Connie's test scores

- 82, 82, 84, 84, 85, 85, 86
- Mean –
- Median –
- Mode –
- Range –
- IQR –
- Standard Deviation -

Oscar's test scores

- 72, 76, 76, 84, 90, 94, 96
- Mean –
- Median –
- Mode –
- Range –
- IQR –
- Standard Deviation –

Which student is more consistent?