Warm-Up   4/19/18

EOC HW Packet

23. The rates of change of two functions are being compared. One function, $f(x)$, is represented by the equation $f(x) = 4x + 2$, while the other function, $g(x)$, is represented in the function table below.

x	g(x)
−1	−2
x_1 1	y_1 4
x_2 2	y_2 7
5	16

Which statement is true?

$f(x) : ROC = 4$

$g(x) : ROC = \dfrac{7-4}{2-1} = \dfrac{3}{1}$

A. The rate of change of $f(x)$ is greater than the rate of change of $g(x)$.

B. The rate of change of $g(x)$ is greater than the rate of change of $f(x)$.

C. The rates of change of $f(x)$ and $g(x)$ are equal.

D. The rates of change cannot be compared because $f(x)$ is a linear function and $g(x)$ is an exponential function.

Quick Check - Measures of Center & Spread   4/19/18

Make sure you show your work on how you calculate the M.A.D.

0:10:00

Day 2: Dot Plots & Histograms # 2 & 4; Day 3: Box Plots #s 1-3

Unit 6   4/18/18
Essential Question

How can we compare Data Sets using the measures of center and spread?

Notes   4/18/18

Day 4 – Comparing Data Sets

Scenario: Coach Smith is trying to decide which two of his point guards he wants to start for the first round of play-offs. The data below shows the numbers of points scored by Jace and Tyler from the past six games.

$\bar{X} =$ Jace: 11, 11, 6, 26, 6, 12 $\bar{X} =$ Tyler: 15, 12, 13, 10, 9, 13 *Model3*

1. Who do you think Coach Smith should select as a starting player and why?

He might have a good next game

2. What is the mean for Jace: _12_   Tyler: _12_ ?   *more consistent*

3. Calculate the deviations for the points scored for each player. Then describe the deviation.

Jace	
Points Scored	Describe Deviation
11	1
11	1
6	6
26	14
6	6
12	0

Tyler	
Points Scored	Describe Deviation
15	3
12	0
13	1
10	2
9	3
13	1

What do you notice about the deviations for each player?

There is a wider variability in Jace's Scores than in Tyler's scores.

4. Add the deviations for each player and divide by the number of data values.

Jace   **Tyler**

$$\frac{28}{6} = 4.7$$ $$\frac{10}{6} = 1.7$$

5. What does the mean absolute deviation tell you about the points scored by each player?

How close or how far each score is from the mean.

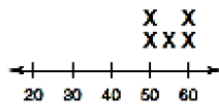6. If you were Coach Webb, which player would you choose to start in the play-off game and why?

Tyler is more consistent than Jace.

Comparing Measures of Center and Spread

Comparing Measures of Center and Spread				
Center			**Spread**	
Mean	• Data is Symmetric • No Outliers	More Spread	• Data values are spread out • Greater MAD	
Median	• Skewed Data • Outliers (Skewed left – mean < median) (Skewed right – mean > median)	Less Spread	• Data values are close together • Smaller MAD	

Example 1: Which data set will have the greater mean absolute deviation? Why?

Set 1: 50, 50, 55, 60, 60

```
        X  X
        X X X
  +--+--+--+--+--+-->
  20 30 40 50 60
    Mean = 55
```

Set 2: 25, 50, 55, 60, 60
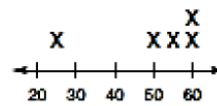
```
                X
            X  X X X
  +--+--+--+--+--+-->
  20 30 40 50 60
    Mean = 50
```

Set 2 because the data values are more spread out.

Example 2: The following data represents test scores from Unit 5 test.

Unit 5 Test Scores: 81, 41, 89, 92, 80, 86, 77, 66, 84, 92, 97, 88, 77, 38

a. Compare the mean and median.

$$\overline{X} = 77.7 \quad Median = 82.5$$
$$\overline{X} < Median \quad \text{less spread and left skewed}$$

b. What type of distribution does the data create? What does this mean?

Skewed left. Fewer scores are on the left of the graph.

c. Are there any outliers? (38)

d. What measure of center best describes the grades and why?

Median because it is skewed and has an outlier.

Example 3: The histograms below show the scores of Mrs. Smith's first and second block class at Red Rock High School.

Test Scores of Mrs. Smith's First Block Class

3 5 7 6 4

Test Scores of Mrs. Smith's Second Block Class

1 1 1 3 6 7 6
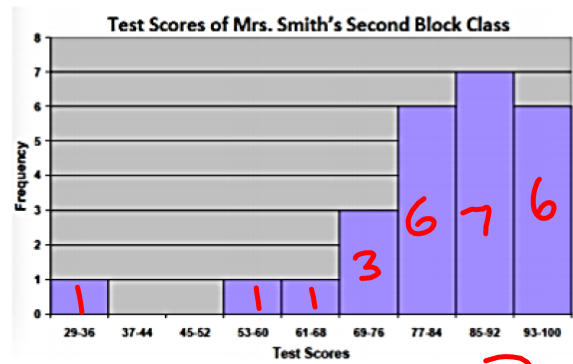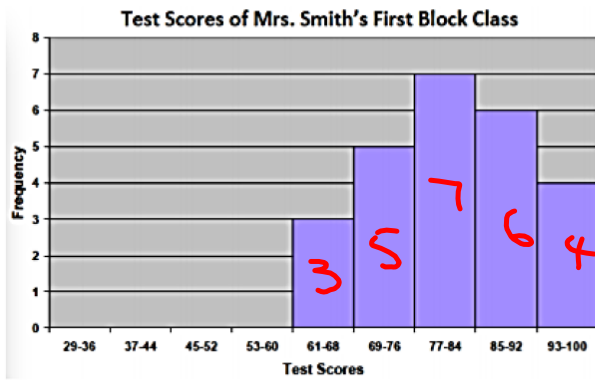
Compare the histograms using the following information:
- **69 and above is passing**
- **68 or below is failing**

25   (25)

1. How many students are in her 1st and 2nd block class?

2. How many students failed the test in each class?

1st Block: 3   2nd Block: 3

3. Which measure of center best describes the data and why?

1st Block — more symmetric

2nd Block - Skewed left.

4. Which class seemed to do better overall?

1st Block

Example 4: Each girl in Mrs. Washington's class and Mrs. Wheaton's class measured their own height. The heights were plotted on the dot plots below. Use the dot plots to compare the heights of the girls in the two classes.

Mrs. Washington

$\bar{x} = 66.5$ Med: 67

Mrs. Wheaton

$\bar{x} = 64.8$ Med = 65
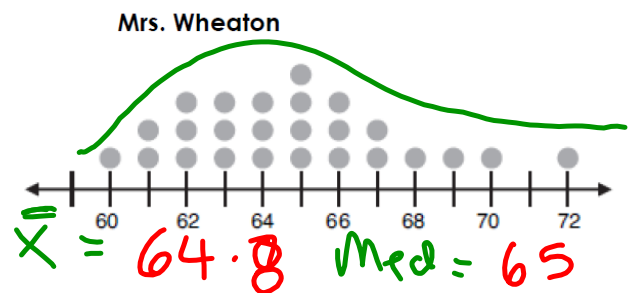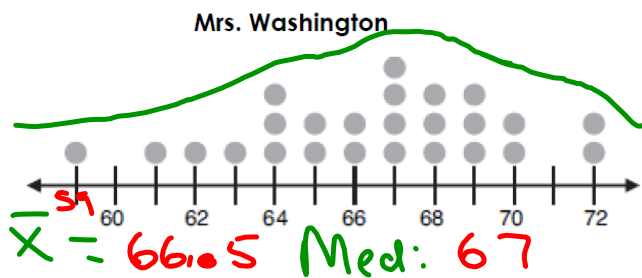
a. Describe the distribution for each class.

left skewed

c. What is the mean and median for each class?

right skewed

b. Which teacher's girls appear to be taller and why?
Mrs. Washington because there are more

tall girls in her class

d. How tall are the majority of the girls in each class?
Washington - between 67 - 72

Wheaton - between 62 - 66

Example 5: The following box plots show the average monthly high temperatures for Milwaukee and Honolulu. Use the box plots to answer the following questions.

Honolulu

Milkwaukee

80 81 84.5 87 88

26   35   57   73   80
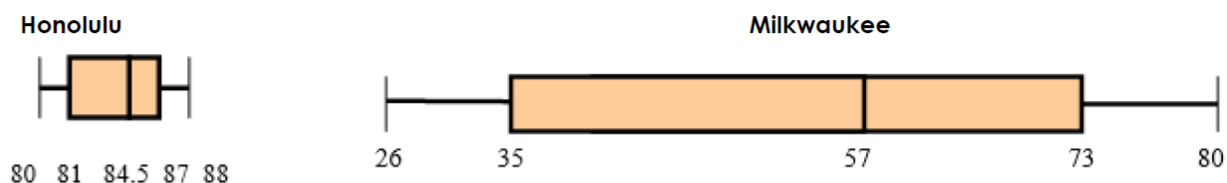
A. What was the median temperature for both cities?

H : Median = 84.5
m : Median = 57

B. What was the range for both cities?

H : Range: 87-80.5
        = 6.5
m : Range: = 80-26
        = 54

C. Which city has more spread in its data and why?

Milkwaukee has more spread. It's spread over the range.

D. Interpret what the 1st and 3rd quartiles mean for both cities.

The 1st quartile is the first quarter of the year, between January and March, and the 3rd quartile is the third quater of the year, between July - September.

So In Honolulu, the temperature is between 80 and 81 degrees during the 1st quarter of the year and between 84.5 and 87 degrees during the 3rd quarter.

In Milkwaukee the temperature is between 26 and 35 degrees during the 1st quarter of the year and between 57 and 73 degrees during the 3rd quarter.

Class Work   4/19/18

Work with your table partner to complete Day 4 and turn in at the end of the class!

Day 4: Comparing Data Displays   Name:_____

Practice Assignment   Block: _____

1. Josh and Richard each earn tips at their part-time job. This table shows their earnings from tips for five days.

Total Tips by Day

Day	Josh's Tips	Richard's Tips
Monday	$40	$40
Tuesday	$20	$45
Wednesday	$36	$53
Thursday	$28	$41
Friday	$31	$28

a. Who had the greatest median earnings from tips?

b. What is the difference in the median of Josh's earnings from tips and the median of Richard's earnings from tips?

c. What is the difference in the interquartile range for Josh's earnings from tips and Richard's earnings from tips?

2. Forty-five people were asked about how many miles they walked in one week. The results are shown in the graph.

a. What is the mean number of miles walked for girls?

b. What is the mean number of miles walked for boys?

c. Compare the means.

Average Distance Walked

3. A science teacher recorded the pulse rates for each of the students in her classes after the students had climbed a set of stairs. She displayed the results, by class, using the box plots shown.

a. Which class had the biggest interquartile range?

b. Which class has the least amount of spread or variability in their data?

c. Which class had the least spread between Q_2 and Q_3?

d. Which class generally had the highest pulse rates after climbing the stairs?

Pulse Rates

Class 1

Class 2

Class 3
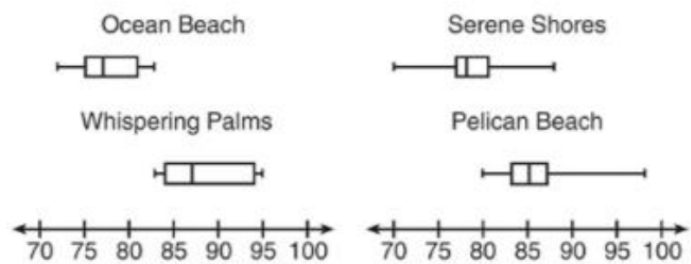
Class 4

60 65 70 75 80 85 90 95 100
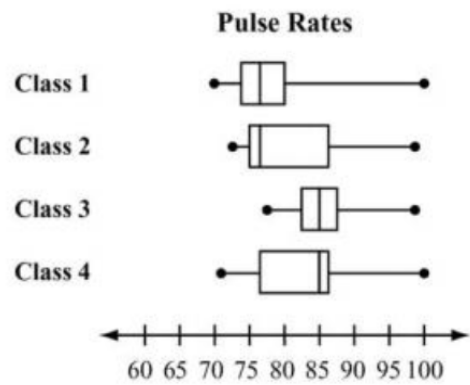
4.   Noah conducted a survey on sports participation. He created the following two dot plots to represent the number of students participating, by age, in soccer and basketball. Which statement about the given data sets is correct?
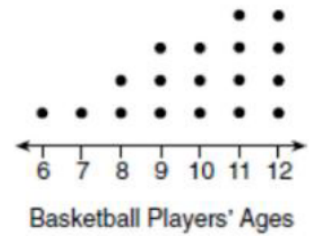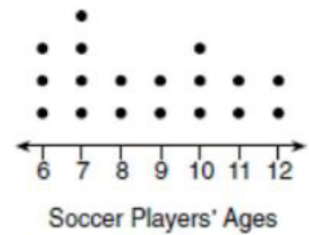
(A)   The data for the soccer players is skewed right.

(B)   The data for the soccer players have less spread than the data for the basketball players.

(C)   The data for basketball players have the same median as the data for soccer players.

(D)   The data for basketball players have a greater mean than the data for soccer players.

Soccer Players' Ages

Basketball Players' Ages

5. Corinne is planning a beach vacation in July and is analyzing the daily high temperature for her potential destination. She would like to choose a destination with a high median temperature and where the temperature does not fluctuate very much. Which destination should she pick and why?

(A)   Ocean Beach

(B)   Whispering Palms

(C)   Serene Shores

(D)   Pelican Beach

Ocean Beach

Serene Shores

Whispering Palms

Pelican Beach

70 75 80 85 90 95 100   70 75 80 85 90 95 100

Explanation: