Agenda: Statistics
This unit will span over 2 class periods.

Day 1
Give Pretest
Use Pretest to introduce Mean, Median, Mode and Range.
Use Worksheet1 in class
Worksheet 2 is homework

Day 2
Use Worksheet 3 in class
Use Top 50 Math Skills pages: 70 - 73
Give Posttest

Name _Mean, Median, Mode, and Range_____

Date____10/24/17_____

Pretest: **Circle** the number of your proficiency in the following areas.

Posttest: Put an **X** on the number of your proficiency in the following areas.

Unit: ____*Statistics*_____

Standards: __Q.6.a – Q.6.c, Q.7_____

Learning Goal: Student can distinguish between Mean, Median, Mode, and Range problems, *and use the correct method to arrive at the solution.*

	GOALS
4	Student is highly successful (> 85%) at solving Mean, Median, Mode, and Range problems, and can show others how to solve problems
	0 1 2 3 4
3	**Student can distinguish between Mean, Median, Mode, and Range problems, and use the correct method to arrive at the solution.**
	0 1 2 3 4
2	Student can sometimes (> 50%) identify and work with Statistic problems. Mean or average: add up the numbers in the set and divide by the number of items in the set. Median: Arrange set from lowest to highest value and determine the middle value Mode: the number(s) that occurs most often.
	0 1 2 3 4
1	Student has an understanding of some of the Statistic ideas: Mean, Median, Mode, and/or Range.
	0 1 2 3 4

Statistics Pretest

Set A {8, 13, 6, 8, 5} **Set B {12, 7, 5, 5, 8, 9}**

1. Find the mean, median, mode, and range for set A.

2. Find the mean, median, mode, and range for set B.

MEAN, MEDIAN, MODE AND RANGE

TO FIND THE MEAN ADD UP ALL OF THE NUMBERS AND DIVIDE BY HOW MANY NUMBERS THERE ARE.

FIND THE MEAN OF:

1) 2, 3, 4, 5, 6
2) 10, 12, 12, 26
3) 8, 12, 32, 14, 15, 6, 17, 13, 3, 10
4) 101, 42, 120, 111, 122, 133, 71, 100
5) 12.6, 22.5, 36, 42, 10.5, 11.4

TO FIND THE MEDIAN PUT THE NUMBERS IN ORDER AND FIND THE MIDDLE NUMBER

FIND THE MEDIAN OF:

1) 17, 2, 4, 1, 7, 9, 10, 11, 16, 12, 18
2) 41 , 32 , 57, 22, 19, 66, 34
3) 22.5, 41.2, 63, 18, 9.6, 100, 33.6
4) 12, 54, 45, 27, 66, 88, 35.4, 42.4
5) 111, 336, 73, 15 5, 67, 12.4, 14.2, 17.6, 18

THE RANGE IS THE DIFFERENCE BETWEEN THE BIGGEST NUMBER AND THE SMALLEST NUMBER

FIND THE RANGE OF:

1) 222, 156, 191.5, 112.2, 164, 175
2) 339, 445, 226, 712, 120, 263
3) 199, 211, 63, 200, 544, 347, 727, 98, 110
4) -23, -2.5, 3, -3, 5, 7, -22.5, 17, 12, 1
5) 236.2, 342.1, 133.1, 213.5, 443.9, 673 7, 236.6

THE MODE IS THE MOST COMMON NUMBER

FIND THE MODE OF:

1) 2, 3, 4, 2, 3, 4, 2, 3, 3, 5
2) 2.1, 5.4, 3.3, 6, 8, 3.3, 11.7, 23, 2.1, 4.5, 3.3, 2.2
3) 10, 20, 30, 20, 30, 10, 30, 20, 30, 15
4) 31, 43, 53, 41, 53, 31, 43, 43
5) 505, 667, 346, 222, 435, 346, 779, 435, 667, 944, 844, 667

ANSWERS

FIND THE MEAN OF:

1) 4
2) 15
3) 13
4) 100
5) 22.5

FIND THE MEDIAN OF:

1) 10
2) 34
3) 33.6
4) 43.7
5) 18

FIND THE RANGE OF:

1) 109.8
2) 592
3) 664
4) 40
6) 540.6

FIND THE MODE OF:

1) 3
2) 3.3
3) 30
4) 43
5) 667

Kuta Software - Infinite Algebra 1 Name_____

Center and Spread of Data

Date_____ Period____

Find the mode, median, mean, lower quartile, upper quartile, interquartile range, and population standard deviation for each data set.

1) Test Scores

37 42 48 51 52 53 54
54 55

2) Mens Heights (Inches)

62 64 69 70 70 71 72
73 74 75 77

3) Age Assumed Office

Senator	Age
Patrick Leahy	34
Mark Pryor	39
Brian Schatz	40
John Thune	43

Senator	Age
Carl Levin	44
Rand Paul	47
John Cornyn	50

Senator	Age
Tammy Baldwin	50
Barbara Boxer	52
Claire McCaskill	53

Senator	Age
John Barrasso	54
Kay Hagan	55
Jerry Moran	56

Senator	Age
Mike Johanns	58
John Boozman	60
Jim Risch	65

4) Sales Tax

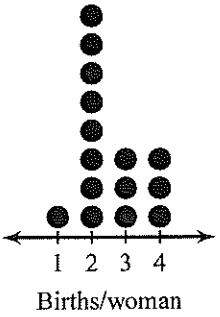
State	Percent
Colorado	2.9
Louisiana	4
Wyoming	4
Oklahoma	4.5
North Dakota	5

State	Percent
New Mexico	5.125
Maine	5 5
Florida	6
Idaho	6

State	Percent
Maryland	6
South Carolina	6
Kansas	6.15
Massachusetts	6.25

State	Percent
Washington	6.5
Indiana	7
New Jersey	7
Rhode Island	7

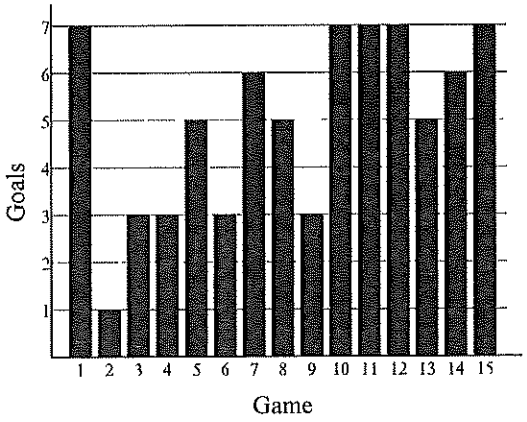
5) Birth Rate by Country



6) Length of Book Titles

# Words	Frequency
2	6
3	3
4	3
5	2
6	2

7) Goals in a Hockey Game

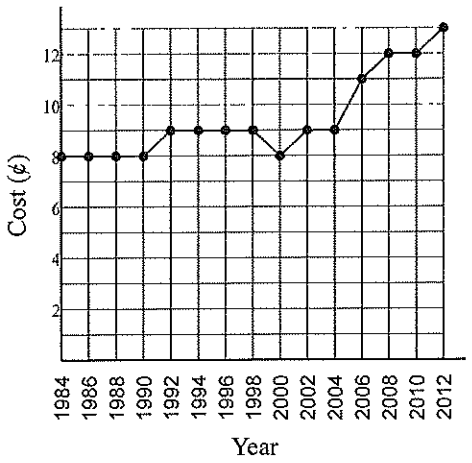


8) Boiling Point (°C)

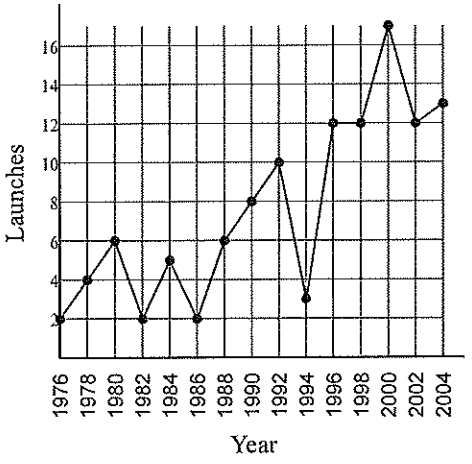
Stem	Leaf
0	1 2 3 3 3 8 9
1	8
2	2 4 9 9
3	2 3 8
4	8

Key. 1|8 = 1,800

9) Cost of Electricity, per kWh



10) European Spacecraft Launches



Kuta Software - Infinite Algebra 1 Name_____

Center and Spread of Data

Date_____ Period____

Find the mode, median, mean, lower quartile, upper quartile, interquartile range, and population standard deviation for each data set.

1) Test Scores

37 42 48 51 52 53 54
54 55

Mode = 54, Median = 52,
Mean = 49.56, $Q_1 = 45$, $Q_3 = 54$,
IQR = 9 and $\sigma = 5.83$

2) Mens Heights (Inches)

62 64 69 70 70 71 72
73 74 75 77

Mode = 70, Median = 71,
Mean = 70.64, $Q_1 = 69$, $Q_3 = 74$,
IQR = 5 and $\sigma = 4.27$

3) Age Assumed Office

Senator	Age
Patrick Leahy	34
Mark Pryor	39
Brian Schatz	40
John Thune	43

Senator	Age
Carl Levin	44
Rand Paul	47
John Cornyn	50

Senator	Age
Tammy Baldwin	50
Barbara Boxer	52
Claire McCaskill	53

Senator	Age
John Barrasso	54
Kay Hagan	55
Jerry Moran	56

Senator	Age
Mike Johanns	58
John Boozman	60
Jim Risch	65

Mode = 50, Median = 51, Mean = 50, $Q_1 = 43.5$, $Q_3 = 55.5$, IQR = 12 and $\sigma = 8.1$

4) Sales Tax

State	Percent
Colorado	2.9
Louisiana	4
Wyoming	4
Oklahoma	4.5
North Dakota	5

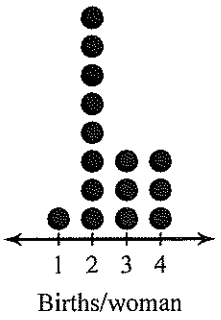
State	Percent
New Mexico	5.125
Maine	5.5
Florida	6
Idaho	6

State	Percent
Maryland	6
South Carolina	6
Kansas	6.15
Massachusetts	6.25

State	Percent
Washington	6.5
Indiana	7
New Jersey	7
Rhode Island	7

Mode = 6, Median = 6, Mean = 5.58, $Q_1 = 4.75$, $Q_3 = 6.375$, IQR = 1.625 and $\sigma = 1.14$

5) Birth Rate by Country



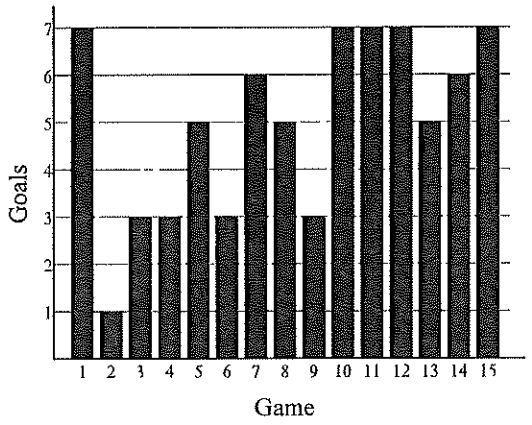
Mode = 2, Median = 2,
Mean = 2.53, $Q_1 = 2$, $Q_3 = 3$,
IQR = 1 and $\sigma = 0.88$

6) Length of Book Titles

# Words	Frequency
2	6
3	3
4	3
5	2
6	2

Mode = 2, Median = 3,
Mean = 3.44, $Q_1 = 2$, $Q_3 = 4.5$,
IQR = 2.5 and $\sigma = 1.41$

7) Goals in a Hockey Game



Mode = 7, Median = 5, Mean = 5, $Q_1 = 3$,
$Q_3 = 7$, IQR = 4 and $\sigma = 1.9$

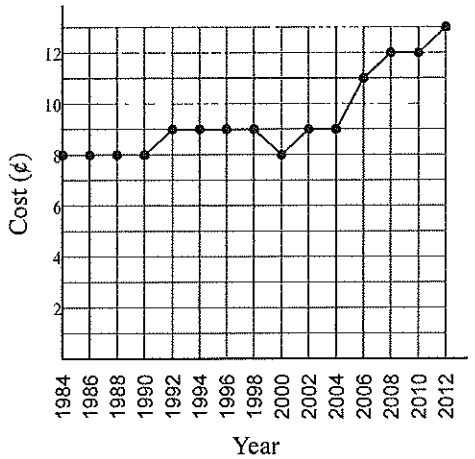
8) Boiling Point (°C)

Stem	Leaf
0	1 2 3 3 3 8 9
1	8
2	2 4 9 9
3	2 3 8
4	8

Key: 1|8 = 1,800

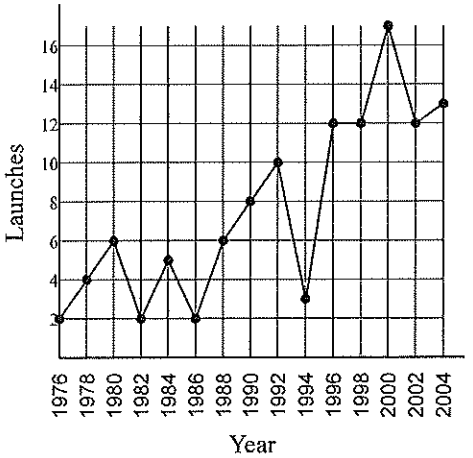
Mode = 300, Median = 2,000,
Mean = 1,887.5, $Q_1 = 300$,
$Q_3 = 3{,}050$, IQR = 2,750 and
$\sigma = 1{,}458.54$

9) Cost of Electricity, per kWh



Mode = 9, Median = 9, Mean = 9.47,
$Q_1 = 8$, $Q_3 = 11$, IQR = 3 and
$\sigma = 1.63$

10) European Spacecraft Launches



Mode = 2 and 12, Median = 6,
Mean = 7.6, $Q_1 = 3$, $Q_3 = 12$,
IQR = 9 and $\sigma = 4.63$

Finding the Mean, Median, Mode Practice Problems

Now you get a chance to work out some problems You may use a calculator if you would like Study each of these problems carefully; you will see similar problems on the lesson knowledge check. You will need paper and a pencil to complete the following exercises You will be able to check your answers with the link provided within the lesson to see how you well you did

Complete the following problems.

1 What is the mean of the following numbers?
10, 39, 71, 39, 76, 38, 25

a 42
b 39
c 42.5
d. 35 5

2. What number would you divide by to calculate the mean of 3, 4, 5, and 6?

a 6
b 3
c 5
d. 4

3 What measure of central tendency is calculated by adding all the values and dividing the sum by the number of values?

a. Median
b Mean
c. Mode
d. Typical value

4 The mean of four numbers is 71 5. If three of the numbers are 58, 76, and 88, what is the value of the fourth number?

a 64
b 60
c. 76
d. 82

5. Determine the mean of the following set of numbers.

40, 61, 95, 79, 9, 50, 80, 63, 109, 42

6. The mean weight of five complete computer stations is 167 2 pounds The weights of four of the computer stations are 158.4 pounds, 162 8 pounds, 165 pounds, and 178.2 pounds respectively. What is the weight of the fifth computer station?

7 The mean width of 12 iPads is 5 1 inches The mean width of 8 Kindles is 4.8 inches.

a What is the total width of the iPads?
b What is the total width of the Kindles?
c. What is the mean width of the 12 iPads and 8 Kindles?

8 The following data represent the number of pop-up advertisements received by 10 families during the past month. Calculate the mean number of advertisements received by each family during the month

43 37 35 30 41 23 33 31 16 21

9 The following table of grouped data represents the weight (in pounds) of 100 computer towers. Calculate the mean weight for a computer.

Weight (pounds)	Number of Computers
[3 - 5)	8
[5 - 7)	25
[7 - 9)	45
[9 - 11)	18
[11 - 13)	4

10 A group of customer service surveys were sent out at random.

The scores were 90, 50, 70, 80, 70, 60, 20, 30, 80, 90, and 20

Find the mean score.

11. What is the median of the following numbers?

10, 39, 71, 42, 39, 76, 38, 25

a. 42 5
b. 39
c 42
d. 35 5

12 The front row in a movie theatre has 23 seats. If you were asked to sit in the seat that occupied the median position, in which seat would you have to sit?

a. 1
b 11
c 23
d. 12

13 What is the median score achieved by a student who recorded the following scores on 10 math quizzes?

68, 55, 70, 62, 71, 58, 81, 82, 63, 79

a. 68
b. 71
c. 69
d 79

14. A set of four numbers that begins with the number 32 is arranged from smallest to largest. If the median is 35, which of the following could possibly be the set of numbers?

a. 32, 32, 36, 38
b. 32, 35, 38, 41
c. 32, 34, 36, 35
d. 32, 36, 40, 44

15 The number of service upgrades sold by each of 30 employees is as follows

32, 6, 21, 10, 8, 11, 12, 36, 17, 16, 15, 18, 40, 24, 21, 23, 24, 24, 29, 16, 32, 31, 10, 30, 35, 32, 18, 39, 12, 20

What is the median number of service upgrades sold by the 30 employees?

a. 18
b. 21
c. 24
d 32

16. Which of the following measures can be determined for quantitative data?

a Mean
b. Median
c. Mode
d. All of these

17 Which of the following measures can be calculated for qualitative data?

a Mean

b Median
c. *Mode*
d. All of these

18 What is the term used to describe the distribution of a data set with one mode?
a. Multimodal
b Unimodal
c. Nonmodal
d. Bimodal

19. What is the mode of the following numbers?

12, 11, 14, 10, 8, 13, 11, 9

a. 11
b 10
c. 14
d 8

20 Which of the following measures can have more than one value for a set of data?
a Median
b. Mode
c Mean
d. None of these

21. What are the modes of the following sets of numbers?

a. 3, 13, 6, 8, 10, 5, 6
b. 12, 0, 15, 15, 13, 19, 16, 13, 16, 16

22 A student recorded her scores on weekly math quizzes that were marked out of a possible 10 points Her scores were as follows.

8, 5, 8, 5, 7, 6, 7, 7, 5, 7, 5, 5, 6, 6, 9, 8, 9, 7, 9, 9, 6, 8, 6, 6, 7

What is the mode of her scores on the weekly math quizzes?

23. What is the mode of the following numbers, and what word can be used to describe the distribution of the data set?

5, 4, 10, 3, 3, 4, 7, 4, 6, 5, 11, 9, 5, 7

24 The temperature in ° F on 20 days during the month of June was as follows.

70° F, 76° F, 76° F, 74° F, 70° F, 70° F, 72° F, 74° F, 78° F, 80° F,
74° F, 74° F, 78° F, 76° F, 78° F, 76° F, 74° F, 78° F, 80° F, 76° F

What is the mode of the temperatures for the month of June?

Resource:

Merry, Brenda (2012, February 23) Chapter 5: measures of central tendency. Retrieved from http://www.ck12.org/flexbook/chapter/9079

Statistics Posttest

Set A {1, 17, 6, 4, 6} **Set B {3, 9, 3, 12, 14, 7}**

1. Find the mean, median, mode, and range for set A.

2. Find the mean, median, mode, and range for set B.

Pre/Post Tests Answers

Pretest:
1)
mean = 8
median = 8
mode = 8
range = 8

2)
mean = 7.66
median = 7.5
mode = 5
range = 7

Posttest:
1)
mean = 6.8
median = 6
mode = 6
range = 16

2)
mean = 8
median = 8
mode = 3
range = 11