warm up p 37

Organize the following data in a stem and leaf

Find the mean and median.

12, 4, 16, 21, 32, 9, 35, 22, 17, 30, 14,

med (17)

0	4 9
1	2 4 6 7
2	1 2
3	0 2 5

mean
19.3
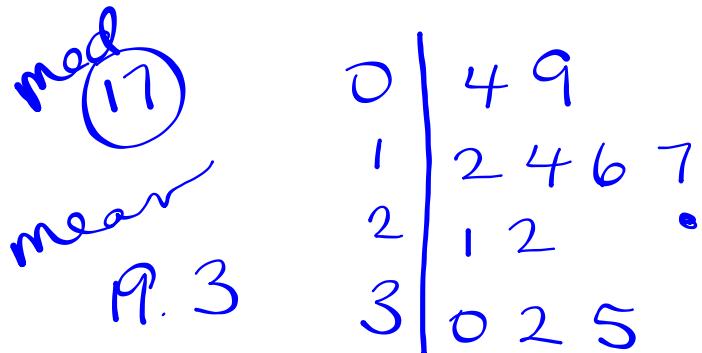
Organize the data in a line plot. Find the median.

2, 4, 6, 2, 6, 4, 7, 1, 2 ,4, 7, 6,

(4)
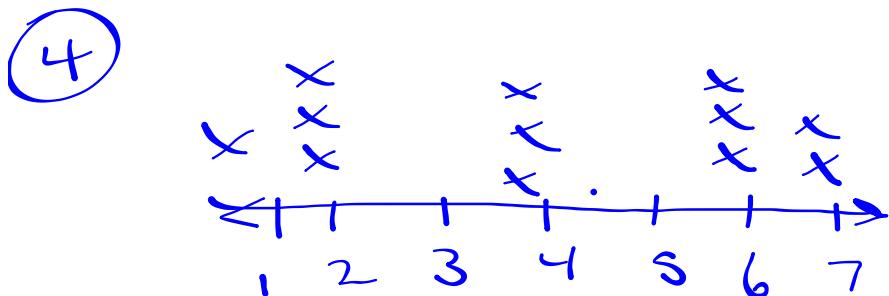
What Do You Get When You Cross the Atlantic with the Titanic?

Find each answer at the bottom of the page and cross out the letter above it (some are rounded).

1. Practice times for five swimmers in the 50-meter freestyle are given in the table. Find the following:

a. The mean of Mike's times. *32.5*

b. The mean of Jason's times. *39.8*

c. The mean of the times on Trial 1. *34.3*

d. The median of Ryan's times. *33.6*

e. The median of the times on Trial 4. *33.4*

f. The mode of all 20 times in the table. *33.8*

Name	Trial 1 (s)	Trial 2 (s)	Trial 3 (s)	Trial 4 (s)
Mike	34.1	33.8	30.5	31.6
Alan	32.5	33.3	34.0	33.8
Jason	41.7	40.0	39.2	38.4
Scott	29.4	29.4	31.0	31.6
Ryan	33.8	32.5	33.8	33.4

1

2. The weekly salary for 10 people is given in the table. Find:

a. The mean salary. *760*

b. The median salary. *550*

c. The mode of the salaries. *500*

Weekly Salary	No. of People
$2400	1
$900	1
$600	3
$500	5

3. The mean weight of 32 math students is 98.3 lb. If the students could all stand on the scale together, what would their total weight be? *3145.6*

4. The Pie Arsquare Bakery sold 869 pies during the month of January. What was the mean number of pies sold per day? *28.03*

150

5. Julie has taken 5 tests in science this semester. On the first three tests, her mean score was 70%. On the last two tests, her mean score was 90%. What is the mean of all five scores? *18*

6. On his trip to the mountains, Klink drove for 3 hours at an average speed of 50 mph, then for 2 hours at an average speed of 30 mph. What was his average speed for the entire trip? *60* *42*

7. As an experiment, Rex tossed 3 coins together and counted the number of heads. He repeated the experiment 25 times. The outcomes are given in the table. What is the mode? *2*

| Tossing 3 Coins: Number of Heads				
2	0	2	3	2
1	3	2	0	1
2	2	1	1	2
0	3	1	2	1
2	1	1	2	3

8. Marissa has taken four 100-point tests in math this semester. Her mean score is 89%.

a. How many points has she scored altogether on the four tests? *356*

b. What score does she need on test #5 so that the mean of all five scores will be 90%? *94*

S	T	H	E	O	P	T	A	L	L	O	F	W	T	A	O	V	E	S
$500	2	92	33.4	32.5	$550	78	3215.8 lb	32.9 s	94	34.3	28	1	356	44 mph	3145.6 lb	76	33.6	42 mph	$580	39.8	$760

HALF WAY

Statistics and Probability:
Mean, Median, and Mode

2

$$5\left(\frac{356+x}{5}\right) = (90)5$$

$$356 + x = 450$$

Name:		Date:
Topic:		Class:

Main Ideas/Questions	Notes/Examples
BOX-AND-WHISKER PLOT	Organize data on a number line in 4 sections
FIVE-NUMBER SUMMARY	The values used to create the box-and-whisker plot: • Minimum Value: smallest value • Lower Quartile: median of lower half • Median: middle • Upper Quartile: median of upper half • Maximum Value: largest number
QUARTILES	4 Sections that make a box plot. Each section is 25% of data
INTERQUARTILE RANGE	Range between the upper & lower quartile, length of the box
EXAMPLE	1. The box-and-whisker plot below represents the heights of a group of students. Give the five number summary, then answer the questions below. Heights (inches) Minimum: 56 Lower Quartile: 60 Median: 64 Upper Quartile: 74 Maximum: 78
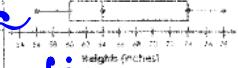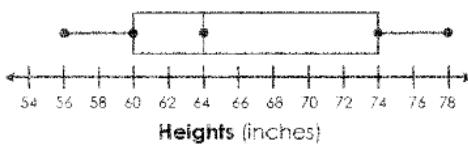
a) What is the range?

$$78 - 56 = 22$$

b) What is the interquartile range?

$$74 - 60 = 14$$

c) What percent of the students are between 56 and 60 inches tall?

25%

d) What percent of the students are at most 74 inches tall?

75%

e) Does the data vary more above or below the median?

Above

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Drawing
**BOX-AND-WHISKER
PLOTS**

Directions: Draw the box-and-whisker plot and give the five-number summary for each data set.

2. Number of grams of fat in 9 sandwiches on a menu at a restaurant:

{35, 16, 19, 25, 12, 22, 39, 28, 14}

[12　14　16　19]　22　[25　28　35　39]

15

31.5
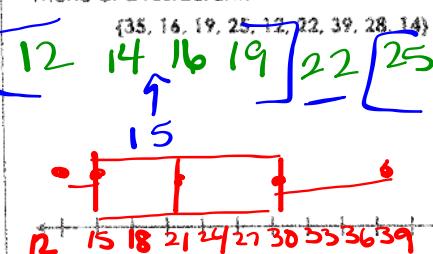
Minimum: 12

Lower Quartile: 15

Median: 22

Upper Quartile: 31.5

Maximum: 39

12 15 18 21 24 27 30 33 36 39

3. Wait time, in minutes, at 15 amusement park rides:

{45, 16, 24, 60, 35, 30, 10, 8, 21, 12, 7, 40, 25, 18, 5}

[5　7　8　10　12　16　18]　21　[24　25　30　35　40　45　60]

5　15　25　35　45　55　60
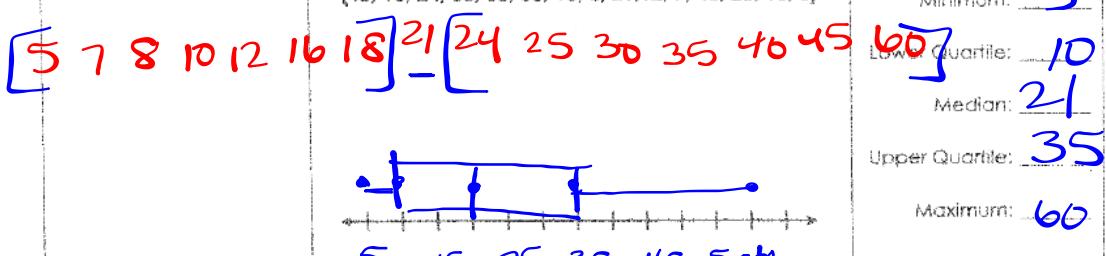
Minimum: 5

Lower Quartile: 10

Median: 21

Upper Quartile: 35

Maximum: 60

4. The heights, in feet, of 10 lighthouses:

{136, 107, 110, 60, 146, 95, 82, 101, 115, 85}
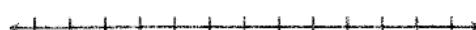
Minimum: _____

Lower Quartile: _____

Median: _____

Upper Quartile: _____

Maximum: _____

4. Vera's heating bill each month, in dollars, for the past year:

{120, 115, 95, 70, 58, 30, 27, 42, 52, 65, 109, 124}

Minimum: _____

Lower Quartile: _____

Median: _____

Upper Quartile: _____

Maximum: _____

MORE PRACTICE

5. The ages of the teachers at Carter Middle School is shown below.

22 26 30 34 38 42 46 50 54 58 62 66

Ages of Teachers

a) What is the median age?

b) What is the interquartile range?

c) What percent of the teachers are at least 30 years old?
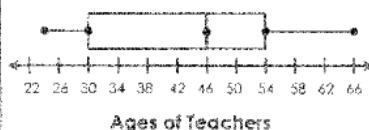
6. The 400-meter run times in a girls' track meet are shown below.

58   60   62   64   66   68   70

Running Time (seconds)

a) Identify the minimum and maximum run times.

b) What percent of the runners had a time between 63 and 70 seconds?

c) What percent of the runners had a time of at most 60 seconds?
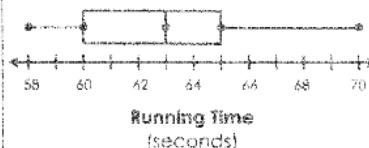
7. The wingspan of the birds at the zoo's birds of prey exhibit are shown below.

24   32   40   48   56   64   72

Wingspan (inches)

a) Identify the lower and upper quartiles.

b) What percent of the birds have a wingspan of no more than three feet?

c) In which quartile do the data values vary the least?

Comparing BOX-AND-WHISKER Plots

8. The Tigers and Brewers are rival baseball teams. The box-and-whisker plot below shows the number of runs scored by the players on each of these teams last season.

Brewers

24   26   28   30   32   34   36

Tigers

a) Which team has the greater range of runs scored by the players?

b) Based on runs, which team has a stronger group of players? Explain your reasoning.