

## **Week of May 26-29**

### **Statistical Questions & Probability**

#### **Statistical Questions Notes:**

A statistical question is one that can be answered by collecting data and where there will be variability in that data. For example, there will likely be variability in the data collected to answer the question, "How much do the animals at Fancy Farm weigh?" but not to answer, "What color hat is Sara wearing?".

#### **Statistical Questions:**

How many acorns do squirrels typically eat in a day?  
Does it typically rain more in the United States or in Brazil?  
What is the typical area of an elephant's left ear?  
What is the typical height of dog kennels at Keita's Kennels?

Non Statistical Question:

How old are you?  
How many hairs are there in Gretchen the Gorilla's right armpit?  
How much was Banker Bob's last paycheck for?

#### **BOTH ASSIGNMENTS DUE: FRIDAY, MAY 29th**

##### **Assignment 1**

1. Lin and her friends went out for ice cream after school. The following questions came up during their trip. Select all the questions that are **statistical questions**.
  - A. How far are we from the ice cream shop?
  - B. What is the most popular ice cream flavor this week?
  - C. What does a group of 4 people typically spend on ice cream at this shop?
  - D. Do kids usually prefer to get a cup or a cone?
  - E. How many toppings are there to choose from?
  
2. Here is a list of questions about the students and teachers at a school. Select all the questions that are **statistical questions**.
  - A. What is the most popular lunch choice?
  - B. What school do these students attend?
  - C. How many math teachers are in the school?
  - D. What is a common age for the teachers at the school?

- E. About how many hours of sleep do students generally get on a school night?
  - F. How do students usually travel from home to school?
3. Use the two questions below to answer (Question A and Question B). Decide if each question is statistical or non-statistical. Explain your reasoning. If you decide that a question is statistical, describe how you would find the answer. What data would you collect?

Question A: Over the past 10 years, what is the warmest temperature recorded, in degrees Fahrenheit, for the month of December in Miami, Florida?

Question B: At what temperature does water freeze in Miami, Florida?

## Assignment 2

1. Carson has a bag of marbles. In the bag, there are 3 red, 2 blue, 6 black, and 5 green marbles. Use this information to answer the following questions.
  - A. What is the probability of picking a green marble from the bag?
  - B. What is the probability of picking a black marble from the bag?
  - C. What is the probability of picking a color that isn't black?
  - D. Carson decides to add 4 red marbles to the bag. How much did he increase his chances of picking a red marble? Write your answer as a fraction, decimal, or percent.
2. Belle flips a coin two times in a row. How many different combinations can she flip?
3. Eli spins two spinners that are each divided into four sections. How many different combinations can he spin?
4. Kate rolls a six-sided die and then flips two coins. How many different combinations are there?
5. Mrs. Randle has three spots in her room that she draws names to see who gets to sit in that spot. She has an office chair, a bean bag, and a table spot. If there are 4 students left to pick from, in how many different ways can she pick students to sit in the three spots?
6. Elliot rolled a six-sided die two times in a row. How many different ways could he roll?

7. Beth rolls a 16-sided die and then spins a spinner that has 8 sections. How many different combinations can she get?
8. Chase rolls an 8-sided die, then flips a coin, and then spins a spinner that has 9 sections. How many different ways can he do these three things?
9. Molly claims that it isn't that hard to flip a coin 12 times in a row on heads, without flipping tails once. How many different ways could she flip the 12 coins?
10. A bag of counters has 2 red, 2 blue, 3 black, and 3 white counters.
  - A. Find the probability of picking a red counter, not replacing it, and then picking the other red counter.
  - B. Find the probability of picking a white counter, not replacing it, and then picking a black counter.
  - C. Find the probability of picking a red counter, a blue counter, and then a black counter, without replacing any of the counters as you draw them.
  - D. Natalya picked a red counter from the bag and left it on the counter. She then added two green counters. She took two more picks from the bag, without replacing any counters, and picked the two greens. Find the probability of her picking the red and two greens as described.
11. Find the probability of flipping a coin on heads and then flipping a second flip on tails.
12. Find the probability of rolling an even number on a 10-sided die, flipping a coin on tails, and then rolling a six on a 6-sided die.
13. Find the probability of picking an ace from a standard deck of 52 cards and then also rolling an odd number on a 6-sided die.
14. Find the probability of picking a black ace from the deck of cards, replacing it, and then picking a red ace from the deck.

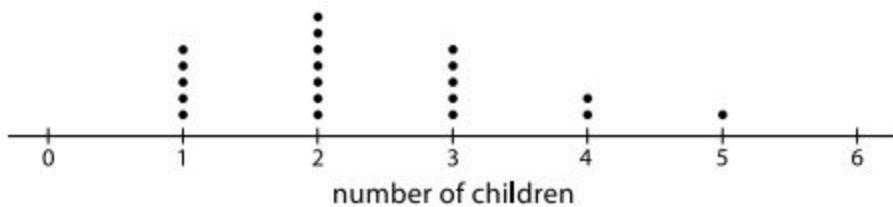
**Week of June 1-5**  
**Dot Plots and Histograms**

**BOTH ASSIGNMENTS DUE: FRIDAY, JUNE 5th**

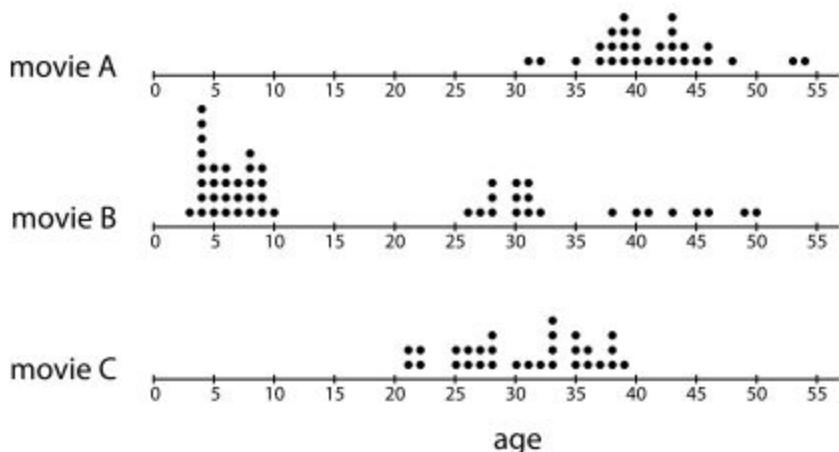
**Assignment 1**

**Dot Plots**

1. A group of students was asked, "How many children are in your family?" The responses are displayed in the dot plot. The responses are displayed in the dot plot below.

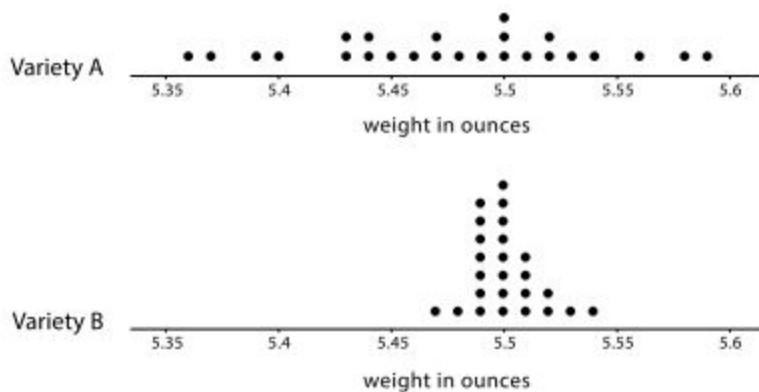


- A. How many students responded to the questions?
- B. What percentage of the students have more than one child in the family?
- C. Write a sentence that describes the distribution of the data shown on the dot plot.
2. A movie theater is showing three different movies. The dot plots represent the ages of the people who were at the Saturday afternoon showing of each of these movies.



- A. One of these movies was an animated movie rated G for general audiences. Do you think it was Movie A, B, or C? Explain your reasoning.  
 B. Which movie has a dot plot with ages that center at about 30 years?  
 C. What is a typical age for the people who were at Movie A?

3. A farmer sells tomatoes in packages of ten. She would like the tomatoes in each package to all be about the same size and close to 5.5 ounces in weight. The farmer is considering two different tomato varieties: Variety A and Variety B. She weighs 25 tomatoes of each variety. These dot plots show her data.



- A. What would be a good description for the weight of Variety A tomatoes, in general? What about for the weight of Variety B tomatoes, in general?  
 B. Which tomato variety should the farmer choose? Explain your reasoning.

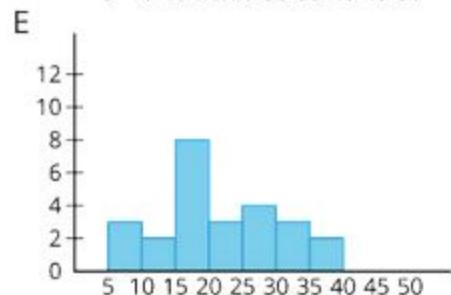
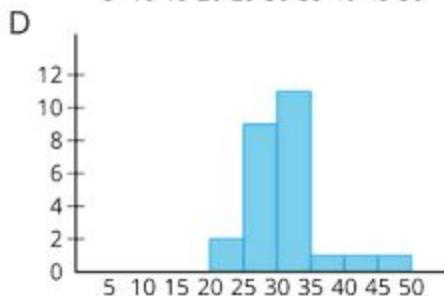
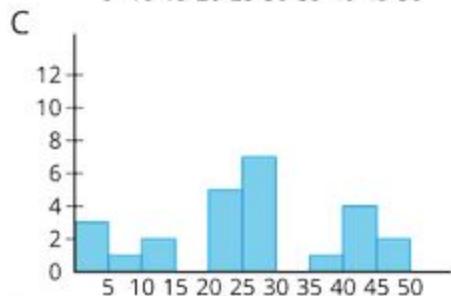
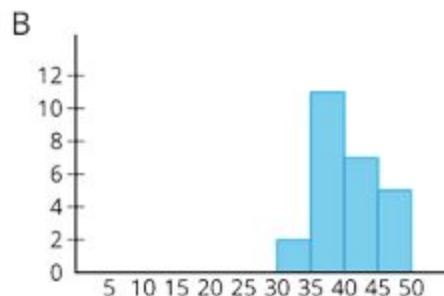
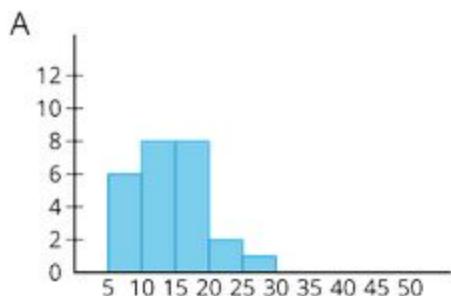
## Assignment 2

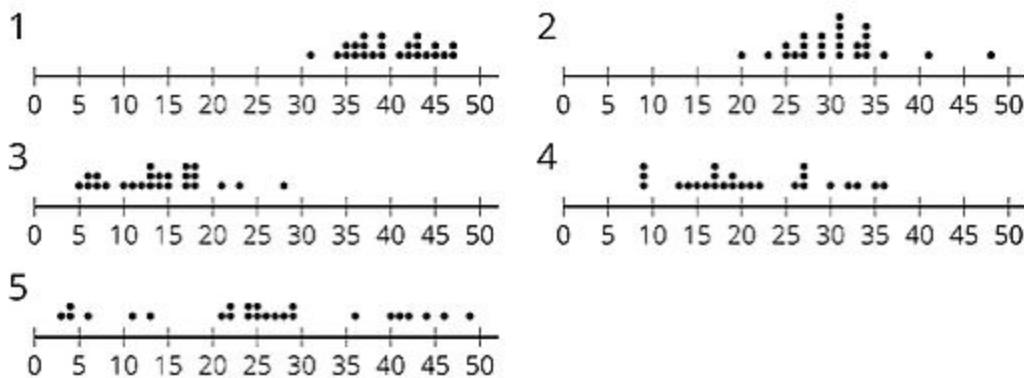
### Histograms

1. Match histograms A through E to dot plots 1 through 5 so that each match represents the same data set.

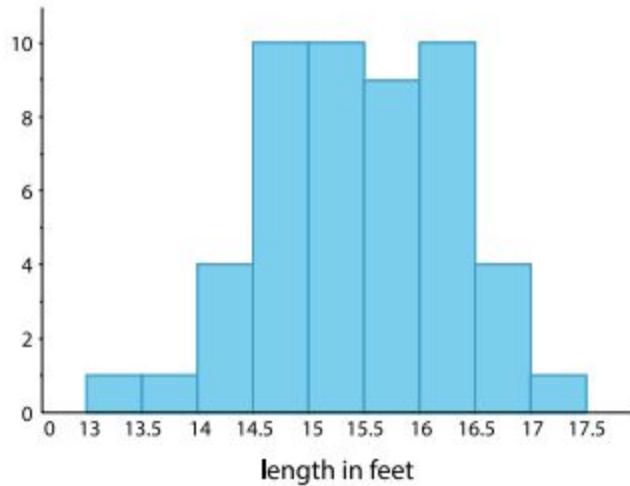
Histogram A  
Histogram B  
Histogram C  
Histogram D  
Histogram E

Dot Plot 1  
Dot Plot 2  
Dot Plot 3  
Dot Plot 4  
Dot Plot 5





2. 2. Here is a histogram that summarizes the lengths, in feet, of a group of adult female sharks. Select all the statements that are true, according to the histogram.



- A. A total of 9 sharks were measured.  
 B. A total of 50 sharks were measured.  
 C. The longest shark that was measured was 10 feet long.  
 D. Most of the sharks that were measured were over 16 feet long.  
 E. Two of the sharks that were measured were less than 14 feet long.

3. This table shows the times, in minutes, it took 40 sixth-grade students to run 1 mile.

time (minutes)	frequency
4 to less than 6	1
6 to less than 8	5
8 to less than 10	13
10 to less than 12	12
12 to less than 14	7
14 to less than 16	2

Draw a histogram for the information in the table.

## **Week of June 8-12**

### **Mean, Mean Absolute Deviation, Median**

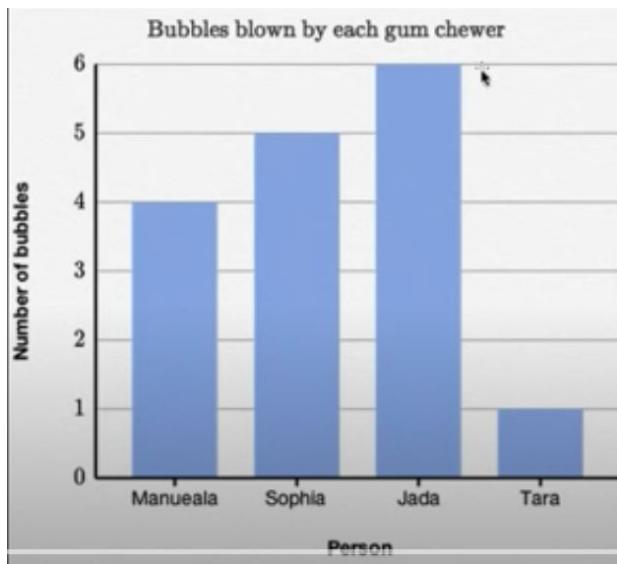
#### **Mean and Mean Absolute Deviation (MAD) Notes**

Mean- Average

Mean Absolute Deviation (MAD)- How much do the data points deviate from the mean?  
Deviation is a measure of DIFFERENCE.

Steps for finding the mean:

- A. Calculate the sum of all numbers in the data set ( $4+5+6+1= 16$ ).
- B. Divide the sum by the number of numbers you have ( $16 \div 4 = 4$ ). This tells us that the mean or average number of bubbles blown is 4.



Steps for finding MAD:

We need to determine how much EACH datapoint deviates from the mean (4).  
Determine the sum of the deviations.

Manuela- deviates 0, Sophia deviates 1, Jada deviates 2, and Tara deviates 3.

$$0+1+2+3=6$$

Divide the sum of the deviations by the number of data points.  $6 \div 4 = 1 \frac{1}{2}$  or 1.5  
The MAD is  $1 \frac{1}{2}$  or 1.5

## Median Notes

Median- the middle number. You must order your data points/numbers from least to greatest and find the MIDDLE number. See the example below.

Data points/numbers: 4, 3, 1, 6, 1, 7

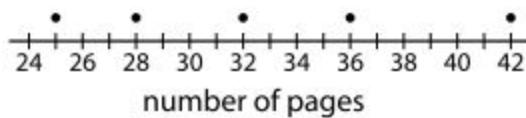
Least to greatest: 1, 1, 3, 4, 6, 7

Since there is an even number of numbers, we don't have just one middle number. We have two, so we must take the average of those two. The two middle numbers are 3 and 4.  $3+4 = 7$   $7 \div 2 = 3.5$

**BOTH ASSIGNMENTS DUE: FRIDAY, JUNE 12th BY 10 AM!!!**

### Assignment 1- Mean & MAD

1. Han recorded the number of pages that he read each day for five days. The dot plot shows his data.



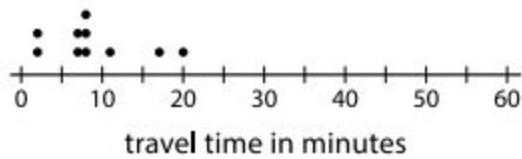
- A. Is 30 pages a good estimate of the mean number of pages that Han read each day? Explain your reasoning.
- B. Find the mean number of pages that Han read during the five days. Draw a triangle to mark the mean on the dot plot.

C. Use the dot plot and the mean to complete the table.

number of pages	distance from mean	left or right of mean
25		left
28		
32		
36		
42		

D. Calculate the mean absolute deviation (MAD) of the data. Explain or show your reasoning.

2. Ten sixth-grade students recorded the amounts of time each took to travel to school. The dot plot shows their travel times.



The mean travel time for these students is approximately 9 minutes. The MAD is approximately 4.2 minutes.

- Which number of minutes is a typical amount of time for the ten sixth-grade students to travel to school, 9 or 4.2? Explain your reasoning.
- Based on the mean and MAD, Jada believes that travel times between 5 and 13 minutes are common for this group. Do you agree? Explain your reasoning.
- A different group of ten sixth-grade students also recorded their travel times to school. Their mean travel time was also 9 minutes, but the MAD was about 7 minutes. What could the dot plot of this second data set be? Describe or draw how it might look.

3.

These three data sets show the number of text messages sent by Jada, Diego, and Lin over 6 days as well as the mean number of text messages sent by each student per day.

Jada: mean 5

Diego: mean 6

Lin: mean 4

4	4	4	6	6	6
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4	5	5	6	8	8
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1	1	2	2	9	9
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1. Predict which data set has the largest MAD and which has the smallest MAD.

2. Compute the MAD for each data set to check your prediction.

## Assignment 2

### Median

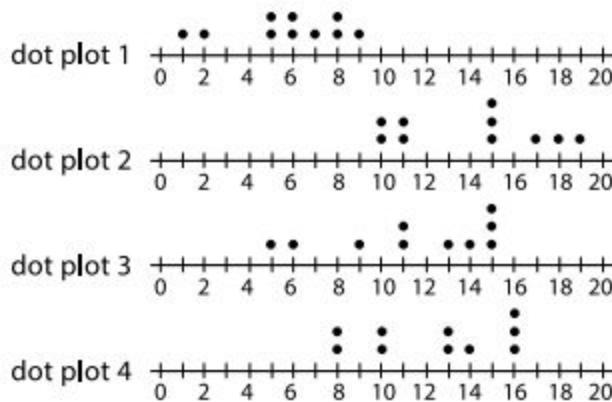
1. Here is a table that shows student's scores for 10 rounds of a video game.

130	150	120	170	130	120	160	160	190	140
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What is the median score?

- A. 125
  - B. 145
  - C. 147
  - D. 150
2. When he sorts the class's scores on the last test, the teacher notices that exactly 12 students scored better than Clare and exactly 12 students scored worse than Clare. Does this mean that Clare's score on the test is the median? Explain your reasoning.

3. The medians of the following dot plots are 6, 12, 13, and 15, but not in that order. Match each dot plot with its median.



4. Invent a data set with five numbers that has a mean of 10 and a median of 12.

5.

Jada and Diego are practicing the piano for an upcoming rehearsal. The tables list the number of minutes each of them practiced in the past few weeks.

Jada's practice times:

10	10	20	15	25	25	8	15	20	20	35	25	40
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Diego's practice times:

25	10	15	30	15	20	20	25	30	45
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1. Find the median of each data set.

2. Explain what the medians tell you about Jada's and Diego's piano practice.