



Algebra II Journal
Module 4: Inferences
Simply Surveying

This journal belongs to:

Module 4: Inferences

Algebra II Journal: Reflection 1

Respond to the following reflection questions and submit to your teacher.

How does the sample mean for the ten states (39.29 inches) compare to the population mean of 28.15 inches?

How does the population mean of 28.15 inches compare to the average snowfall of Maryland (20.6 inches)?

The population standard deviation is 27.437 inches. The sample standard deviation is 30.688 inches. What do these values say about the data?

Allyson's hypothesis was that Maryland gets more snow than any other state. Marissa's hypothesis was that Maryland gets about the same amount of snow as the United States. (A hypothesis is a statement made about the population parameter.) Can either hypothesis be supported by the sample statistics? Use what you know about statistics to justify your answer.

Module 4: Inferences

Algebra II Journal: Reflection 2

Here are some statistical surveys you can conduct right in your own school!

1. Would you be in favor of a class period devoted to studying and completing homework?
2. Which is more preferred: Eating dinner in a restaurant or eating a home-cooked meal?
3. What is the average height of high school students?
4. Which Internet search engine is most used?

Respond to the following reflection questions and submit to your teacher.

Choose a survey to complete. You may choose one of the surveys above, or design one of your own.

Determine the population you are surveying.

State your hypothesis.

Module 4: Inferences

Design the survey you will distribute in order to obtain a simple random sample.

Module 4: Inferences

Identify who will be in your sample.

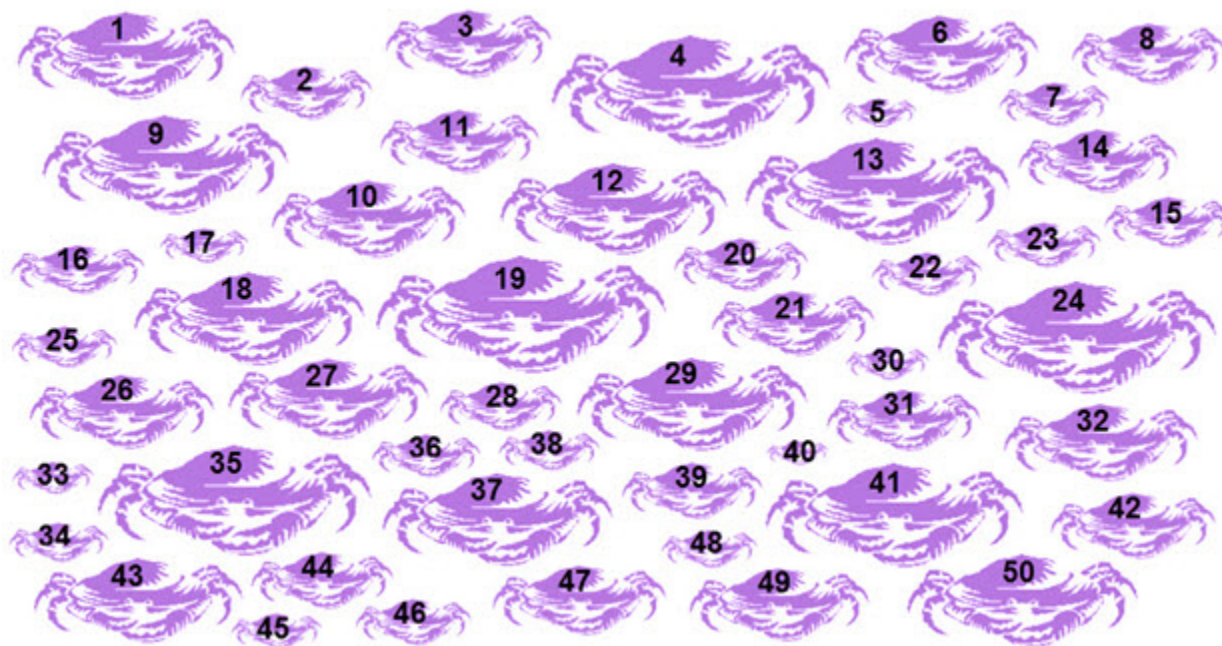
Be sure the survey will produce the intended sample you need for your intended population.

Determine how you will conduct your survey. Be sure your method will produce a simple random sample!

Module 4: Inferences

Algebra II Journal: Reflection 3

Pictured here is a colony of fifty “purple tsunami crabs.”



Module 4: Inferences

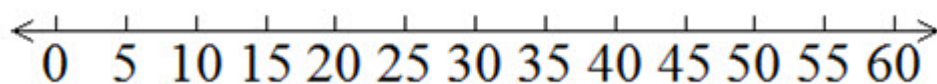
Each crab can be identified by the number that appears on its shell. The table below shows the length of each crab. Note that a crab is measured by the length of its top shell, excluding the legs.



Crab Number	Shell Length	Crab Number	Shell Length
1	30	26	27
2	19	27	29
3	24	28	18
4	39	29	33
5	10	30	12
6	27	31	22
7	15	32	28
8	22	33	11
9	39	34	14
10	28	35	40
11	23	36	16
12	32	37	33
13	38	38	15
14	22	39	20
15	17	40	9
16	19	41	37
17	13	42	24
18	33	43	30
19	42	44	20
20	19	45	12
21	23	46	17
22	16	47	25
23	16	48	13
24	40	49	26
25	14	50	33

Module 4: Inferences

Make a dot plot of your data using the number line below, or using your graphic calculator or [Shodor Applet](#). See the Calculator Resources for instructions about creating a histogram as an alternative to creating a dot plot.



Module 4: Inferences

Now respond to the following reflection questions and submit to your teacher.

Describe the shape, center and spread of the distribution of sample mean from the first dot plot you made. This was the dot plot where you selected any crabs you wanted.

Describe the shape, center and spread of the distribution of sample mean from the second dot plot you made. This was the dot plot where your selection of crabs was randomly selected.

Describe the key differences between the two distributions of sample means.

Module 4: Inferences

Decide which sampling method you think is the better one for estimating the population mean by a sample mean, and explain your reasoning.

Module 4: Inferences

Algebra II Journal: Reflection 4

Respond to the following reflection questions and submit to your teacher.

Return to the survey you designed (or selected) previously in this lesson. Explain why it is better to obtain a random sample of your population.

Justify why your survey produces a simple random sample.

Justify why your survey will be a statistically accurate representation of your intended population.

Conduct your survey, and organize the data you receive. You may choose to use a table, graph, etc.