HW: Worksheet/2-14 even, 17-19, 27, 28

Warm up:

Find the mean, median, and mode.

12, 12, 16, 8, 9, 14, 13, 16, 7, 10

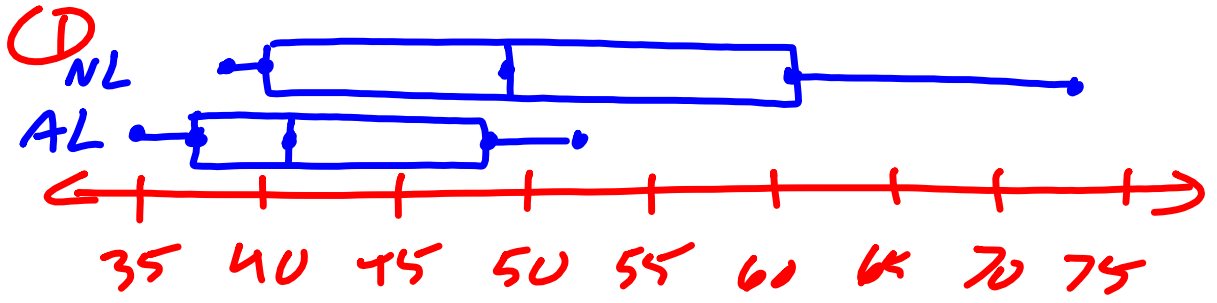
7, 8, 9, 10, 12, 12, 13, 14, 16, 16

mean = 11.7

median = 12

mode → 12 and 16

HW Solutions



What is a sample?

a subset of a population

When choosing a sample, we need to make sure it is not **biased**.

What would be an example of a biased sample?

- asking people in Alabama about the best state
- only collecting data from a certain group
  - young
  - old
  - careers
  -

convenience sample - involves members of a population that are easily accessed

ex: to represent all students in a school, you survey the students in one math class

voluntary response sample - involves only those who want to participate

ex: students who wish to express their opinion are asked to complete an online survey

To determine what kind of movies people like to watch, every tenth person who walks into a video rental store is surveyed. The store carries all kinds of movies. Out of 180 customers surveyed, 62 stated that they prefer action movies. The store managers concludes that about a third of all customers prefer action movies.

unbiased

A television program asks its viewers to visit a website to indicate their preference for two presidential candidates. 76% of the viewers who responded preferred candidate A, so the television program announced that most people prefer candidate A.

biased

voluntary response

To determine what people like to do in their leisure time, people at a local mall are surveyed. Of these, 82% said they like to shop. The mall manager concludes that most people like to shop during their leisure time.

biased

To determine what kind of sport junior high school students like to watch, 100 students are randomly selected from each of four junior high schools in a city. Of these, 47% like to watch football. The superintendent concludes that about half of all junior high students like to watch football.

unbiased

Practice

Determine whether each conclusion is valid. Justify your answer.

1) To determine the number of umbrellas the average household in the United States owns, a survey of 100 randomly selected households in Arizona is conducted. Of the households, 24 said that they own 3 or more umbrellas. The researcher concluded that 24% of households in the United States own 3 or more umbrellas.

biased

2) To evaluate their product, the manufacturer of light bulbs inspects the first 50 light bulbs produced on one day. Of these, 2 are defective. The manufacturer concludes that about 4% of light bulbs produced are defective.

biased

convenience

3) To determine which type of pet is preferred by most customers, the manager of a pet store surveys every 15th customer that enters the store.

unbiased

4) To determine whether 15 boxes of porcelain tea sets have not been cracked during shipping, the owner of an antique store examines the first two boxes. None of the tea sets have been cracked, so the owner concludes that none of the tea sets in the remaining boxes are cracked.

biased

convenience

5) A grocery store asked every 20th person entering the store what kind of pasta they preferred. The results are shown in the table below. If the store decides to restock their shelves with 450 boxes of pasta, how many boxes of lasagna should they order?

Pasta	Number
Macaroni	38
Spaghetti	56
Rigatoni	12
Lasagna	44
	150

$\frac{44}{150} = \frac{x}{450}$

$\frac{150x}{150} = \frac{19800}{150}$

$x = 132$

132 boxes of lasagna

Lesson Quiz

February 3, 2022