

AP Statistics Summer Assignment
Statistics Honors Summer Assignment
Statistics Level 1 Summer Assignment

Congratulations in choosing this course as an elective!

Although Statistics is offered by the Math Department, it is different than any Math course you have taken thus far. It is an applied math with its own terminology, symbols, skills and concepts. It involves reading comprehension skills, along with mathematical, analytical, verbal and writing skills. You will learn to collect and analyze data, think critically, and make well-substantiated conclusions supported by appropriate calculations and visuals. The use of your **TI CX CAS graphing calculators** will be used extensively in the course and you should be prepared to write all conclusions in context using complete, grammatically correct sentences.

We will be using Edhesive, an online forum for the entire course. The text, Stats, Modeling the World, 3rd Edition, will be used for reading, outlines, and vocabulary, and select homework problems. There will be a link provided for the book. You will need a binder for notes, classwork and homework.

For the summer assignment

All levels MUST complete the Statistics Problem Assignment attached, ALSO AP Statistics must complete all of the following 3 tasks

Statistics Honors please choose 2 from the following tasks

Statistics Level 1 choose 1 assignment of the following tasks

You will be asked to complete a one/two page reflection on your tasks in your first class.

- 1) Watch the following videos to get a broad sense of Statistics

US Census Bureau on Why Statistics in Schools Video 1

https://www.youtube.com/watch?time_continue=3&v=yxXsPcobphQ

US Census Bureau on Answering 3 Questions Video 2

<https://www.youtube.com/watch?v=HKAohtesJOA>

NPR Shots Health News (Mammograms)

<https://www.npr.org/sections/health-shots/2016/10/12/497549732/skip-the-math-researchers-paint-a-picture-of-health-benefits-and-risks>

- 2) As you think about your future, please take a look at the full list of majors and career areas in which Statistics is required. Choose one and research it.

<https://apstudent.collegeboard.org/apcourse/ap-statistics>

- 3) Read the book, Outliers, Malcolm Gladwell OR Watch a movie on Math/Statistics

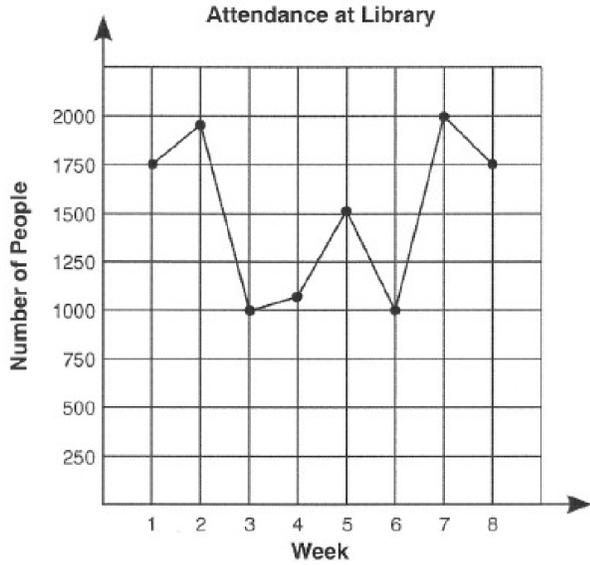
<https://unitedstatisticians.com/blog/movies-that-will-make-you-love-mathematics-statistics-and-numbers/?lang=en>

AP Statistics Summer Math Packet

Name: _____

Date: _____

1. The graph shows the number of people who visited the library each week over an eight-week period.



Which is the best estimate of the mean number of people visiting the library in one week?

- A. 1000 B. 1500 C. 1650 D. 1750

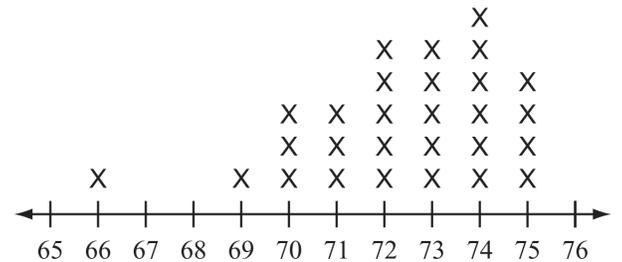
2. The line plot shows the number of books read by the students in Marco's class last summer.



What was the mean (average) number of books read?

- A. 2 B. 3 C. 5 D. 10

3. The line plot below shows the heights, in inches, of 28 basketball players.

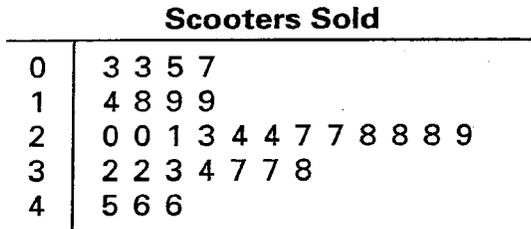


Height of Basketball Players (in inches)

Based on the line plot, which of the following is true?

- A. The mean is greater than the mode.
 B. The median is greater than the mode.
 C. The mean is greater than the median.
 D. The median is greater than the mean.

4. This stem-and-leaf plot shows the number of scooters sold for several months.



1 9 represents 19 scooters

Which number is the mode in this plot?

5. Jacob made the stem-and-leaf plot below to show the number of minutes per day he spent playing video games over a 10-day period.

**Minutes Spent
Playing Video Games**

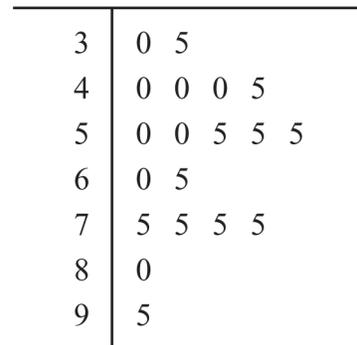


What is the mean of the set of data in the stem-and-leaf plot?

- A. 81 B. 82 C. 83 D. 85

6. The price, in cents, of each item in a vending machine is shown in the stem-and-leaf plot below.

**Prices of Items
in Vending Machine**



Key
3 5 represents 35 cents

What is the range of the prices of the items?

- A. 55 cents B. 60 cents
C. 65 cents D. 75 cents

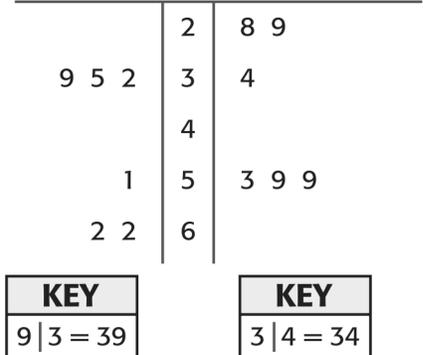
7. This table lists the ages of 12 store owners.

AGES OF STORE OWNERS

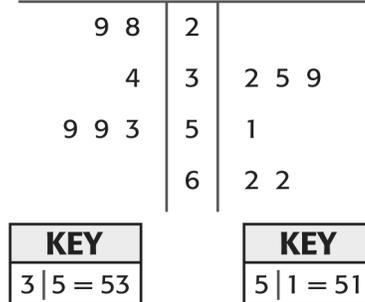
Toy Store	Clothing Store
28, 29, 34,	32, 35, 39,
53, 59, 59	51, 62, 62

Which stem-and-leaf plot correctly displays the data?

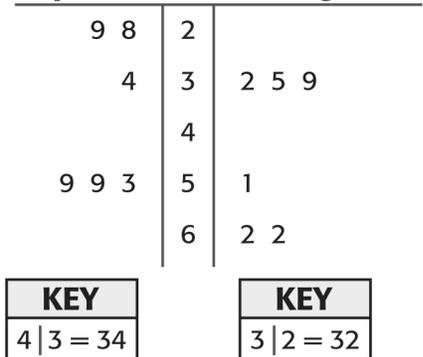
A. **AGES OF STORE OWNERS**
Toy Store Clothing Store



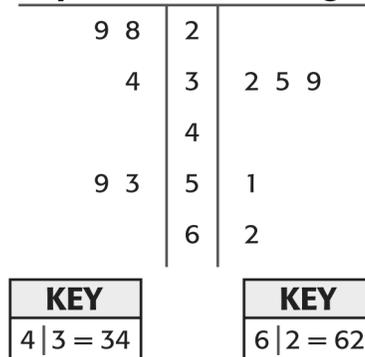
B. **AGES OF STORE OWNERS**
Toy Store Clothing Store



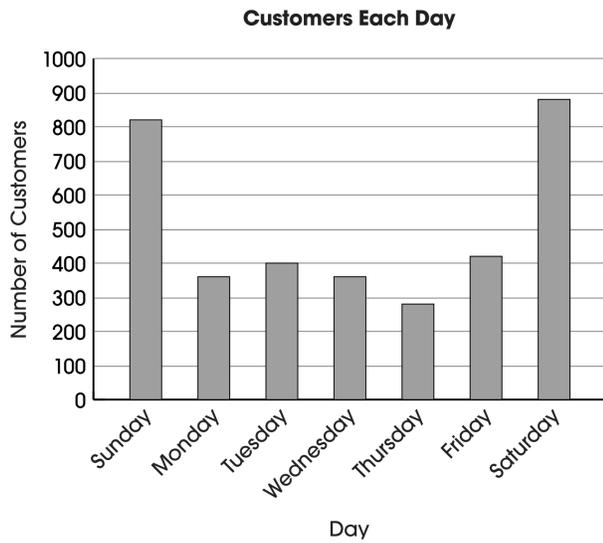
C. **AGES OF STORE OWNERS**
Toy Store Clothing Store



D. **AGES OF STORE OWNERS**
Toy Store Clothing Store



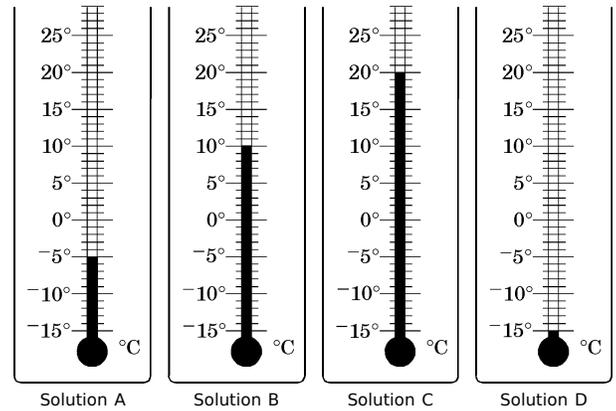
8. The bar graph shows the number of customers in Rios restaurant each day last week.



What is the approximate mean number of customers per day in Rios restaurant last week?

- A. 360 B. 400 C. 440 D. 500

9. The thermometers below show the Celsius temperatures of four different solutions.



What is the range of the temperatures of the solutions?

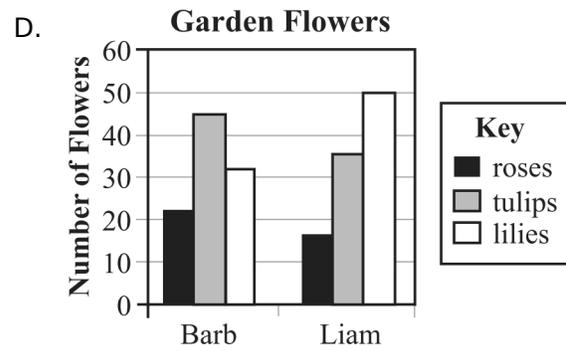
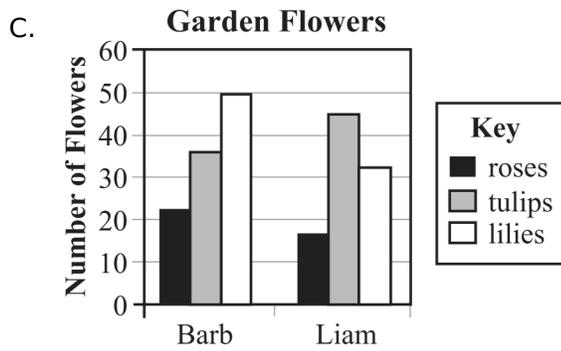
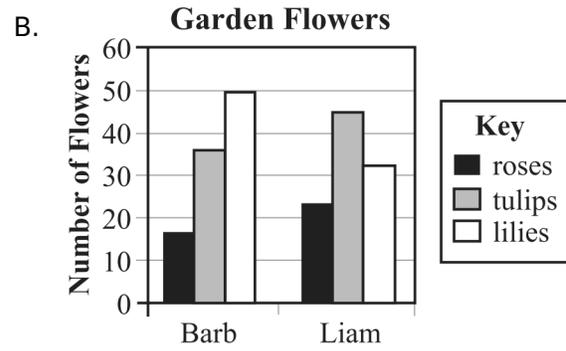
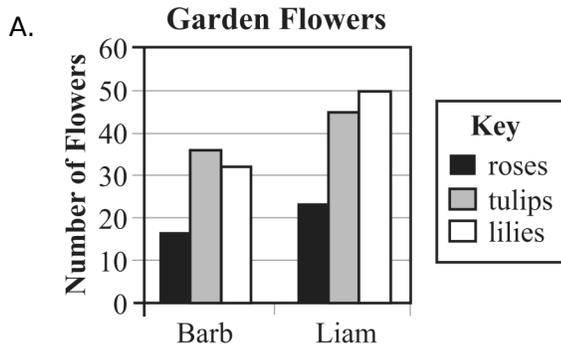
- A. -5°C B. 5°C C. 20°C D. 35°C

10. The table below shows how many flowers of each type Barb and Liam have in their gardens.

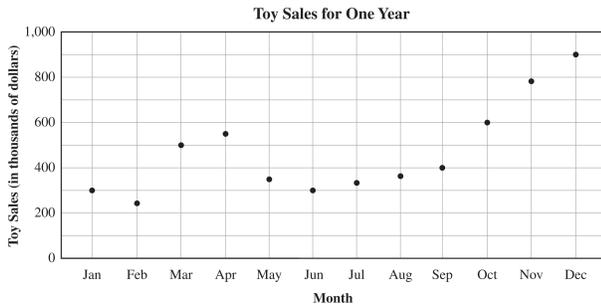
Garden Flowers

	Barb	Liam
roses	23	17
tulips	45	36
lilies	32	50

Which graph represents the data?

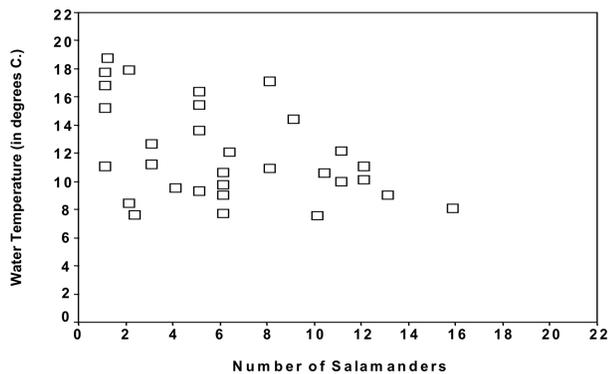


11. The graph below shows the amount of monthly sales at a local toy store during one year.



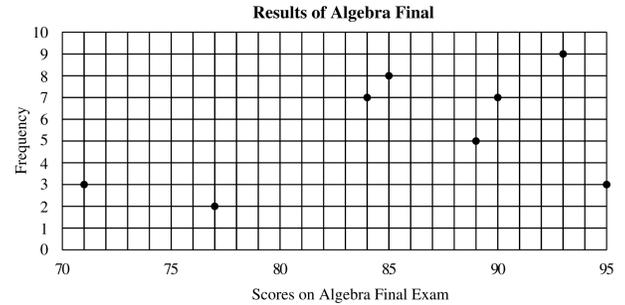
Based on the graph, which is the closest *estimate* of the *range* in the amount of monthly sales at the store during the year?

- A. \$650,000 B. \$600,000
 C. \$350,000 D. \$300,000
12. According to the plot below, what is the range of water temperatures in which you would expect to find salamanders?



- A. between 0 and 22 degrees
 B. between 7 and 19 degrees
 C. between 0 and 7 degrees
 D. between 1 and 16 degrees

13. The graph below shows the frequency of test scores on the algebra final exam.



What is the *mode* of the algebra final exam scores?

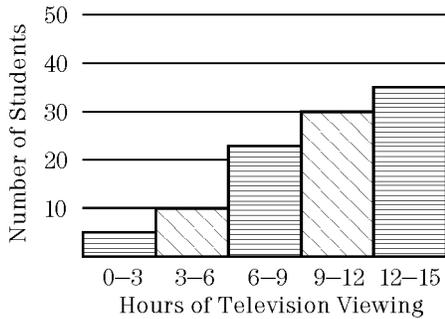
- A. 88 B. 89 C. 93 D. 95
14. The bar graph below shows a group of students' scores on a history quiz.



Which of the following statements is *not* correct?

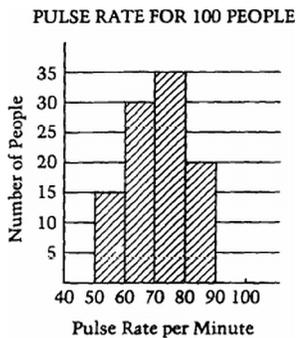
- A. Thirty-seven students took the quiz.
 B. The mode score was 70 on the quiz.
 C. The mean and median scores on the quiz are the same.
 D. Exactly 50% of the students scored 70 or higher on the quiz.

15. The histogram shows the weekly television viewing times of 100 students. How many students watch television between 9 and 12 hours each week?



- A. 40 B. 30 C. 35 D. 25

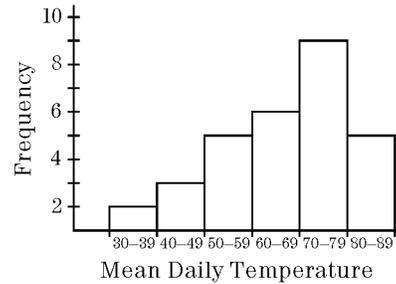
- 16.



The pulse rate for a group of 100 people is shown in the graph above. What is the average pulse rate per minute for these 100 people? (Note: Use the midpoint of each interval to represent the pulse rate for the entire interval. For example, 55 would be used for the pulse rate of the 15 people in the 50-60 group.)

Answer: _____

17. Based on the data displayed in the histogram, can you determine the true mean temperature for the month of June or just an approximation? Explain your answer.



18. Create a histogram from the following data which were collected by the quality assurance division of a bottling plant with respect to the volume of cola in 2-liter bottles: 2.1, 2.1, 1.9, 1.8, 2.2, 2.2, 2.1, 2.1, 2.0, 1.8, 1.9, 1.9, 1.9, 2.1, 1.8, 1.9, 2.0, 2.1.

19. Sina's goal is to exercise a mean of 45 minutes per day for one week. For the first 6 days of the week, she exercised 35, 40, 37, 42, 45, and 50 minutes.

What is the number of minutes Sina must exercise on the 7th day of the week to reach her goal exactly?

- A. 21 minutes B. 42 minutes
C. 49 minutes D. 66 minutes

20. While summarizing payroll reports for her company, Ms. Walthers noticed that the mean salary in the firm was \$32,500 while the median salary was only \$28,200. What must be true regarding paychecks at this company?

- A. There is at least one paycheck that is significantly less than the median payroll amount.
- B. There is at least one paycheck that is significantly greater than the median payroll amount.
- C. All paychecks in the company are relatively similar.
- D. The mode must be between \$28,200 and \$32,500.

21. An antique dealer bought 5 different antiques and had them appraised.

- The least expensive antique was appraised at \$75.00.
- The range of appraisals was \$300.00.
- The mode was \$75.00.
- The median was \$205.00.
- The mean (average) was \$210.00.

What were the appraisals on each of the 5 antiques? Show your work or explain how you found your answer.

22. There are 10 people in an elevator, four women and six men.

The average weight of the women is 120 pounds, and the average weight of the men is 180 pounds.

What is the average weight of the ten people in the elevator? Show how you found your answer and explain your thinking.

23. Mr. Young wrote five numbers on the board in his classroom. After class, one of the numbers was erased. Four of the five numbers are shown below.

18 25 30 17 ?

If the median of the five numbers that Mr. Young wrote on the board was 18, which of the following could be true?

- A. The number that was erased was greater than 30.
- B. The mode of the five numbers Mr. Young wrote on the board was 24.
- C. The mean of the five numbers Mr. Young wrote on the board was 22.6.
- D. The number that was erased was less than or equal to 18.

24. The cholesterol levels of 5 people are shown in the chart below.

Cholesterol Levels

Person	Cholesterol Level
1	203
2	188
3	205
4	215
5	212

If the cholesterol level of person 4 decreases from 215 to 210, how will the median of the data be affected?

- A. The median will increase.
- B. The median will decrease.
- C. The median will stay the same.
- D. There is not enough information given to determine how the median is affected.

25. The percent of different types of items sold at Bob's store for the years 2002 and 2003 are shown in the circle graphs below.



Which table shows the data in the circle graphs?

A. **BOB'S STORE SALES**

Item	Percent in 2002	Percent in 2003
food	25	50
clothing	25	30
electronics	50	20

B. **BOB'S STORE SALES**

Item	Percent in 2002	Percent in 2003
food	30	10
clothing	30	20
electronics	40	30

C. **BOB'S STORE SALES**

Item	Percent in 2002	Percent in 2003
food	33	50
clothing	33	20
electronics	33	30

D. **BOB'S STORE SALES**

Item	Percent in 2002	Percent in 2003
food	30	50
clothing	30	30
electronics	40	20

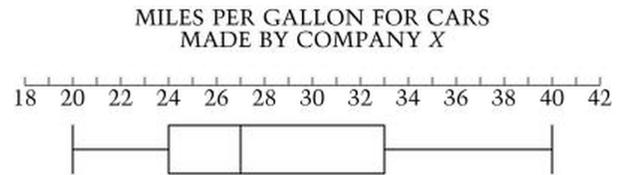
26. A local jeweler began a sale on Monday. It was 70% off the ticket price. The following Friday he advertised an additional 35% off the original ticket price. Do you find this hard to believe? Explain.

27. Last week Robin did 30 sit-ups in one minute. Today, she did 45 in one minute. Her coach told her she had improved 150%. Is this correct? Explain.

28. An election involving four candidates for mayor has been held. Of the following, which is the best way to present the percentage of votes each candidate received?

- A. Circle graph B. Box plot
C. Scatterplot D. Histogram

29.



According to the box-and-whisker plot above, three-fourths of the cars made by Company X got fewer than how many miles per gallon?

- A. 20 B. 27 C. 33 D. 40

30. One thousand people selected at random were questioned about smoking and drinking. The results of this survey are summarized in the table below. Calculate the probability that a randomly selected respondent drinks and smokes.

	Smokers	Non-smokers
Drinkers	320	530
Non-drinkers	20	130