Please go to Update page and Course page to see information about class and to keep up to date. The links are in Canvas main page and also on httpp://nature-lover.net/math. You can see old notes from spring 25 etc at this website. It will help you prepare for class.

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QUIZ 6 FRIDAY.

Note : Both arithmetic and geometric might involve numbers that are increasing or decreasing. But for geometric, need to find common ratio by dividing. So if the sequence is 100, 110, 121, .. you see that 110/100 = 1.1, 121/110 = 1.1, etc., The common ratio is not 10 or even 0.1.

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Today: Introduction to statistics

What is statistics?

Collection, Organization, Presentation, Analysis, Prediction

Some places where statistics was used in a big way:

- Census – collects data on the entire population of a country
- Economy – data such as GDP, Employment numbers, etc.,
- Election – data from voting, polls, etc.,
- Medicine: research on cause, spreading, and curing of Disease
- Weather and Climate

Other places where statistics are used heavily:

Sports, finance and the stock market, business,...

Collecting Data: Need to collect a representative sample when it is not possible to gather all the data. Especially, in election polling, sampling plays a big role.

- Random: Call a bunch of random numbers

• Systematic: One from each area code, pick specific SSN's using algorithm

• Stratified: Data from different categories

• Cluster: People flying through a particular airport, National parks, DMVs, stores, malls.

Two kinds of ways to organize data:

Stem-leaf plots and Frequency tables

Example: Let us say your scores in a class are

71, 85, 73, 80, 91, 74, 82, 79, 85, 95.

Stem-leaf plot: (works better for numbers)

Notice that the first digit is either 7, 8 or 9.

7 : 1, 3, 4, 9

8 : 5, 0, 2, 5

9: 1, 5

Stem-leaf plotting helps to see the number of items in each level and also their relative size.

For example, we can see that there are 4 scores in the seventies, and their average is 74.25.

Frequency table:

70-79: |||| frequency = 4

80-89: |||| freq = 4

90-99: || freq = 2

Frequency table works well even when data is not numbers.

Green: |||| f = 4

Blue : |||||| f = 6

Red: || f = 2

Purple: ||| f = 3

Example: Points scored by Steph Curry in games until Feb 16 are:

32, 40, 28, 21, 29, 56, 15, 30, 20, 12

Stem leaf plot:

1 – 5, 2

2 – 8, 9, 1, 0

3 – 2, 0

4 – 0

5 – 6

Frequency table:

1 -- | | (2 VALUES)

2 -- | | | | (4 VALUES

3 -- | | (2 VALUES)

4 -- | (1 VALUE)

5 -- | (1 VALUE)

PRACTICE QUESTIONS FOR TODAY

1. Describe the following methods of data collection as random, systematic, stratified, or cluster. Some could fit into more than one category:
    a. Talking to everyone attending a concert
    b. Sending emails to everyone and collecting responses
    c. Gathering data from one person in each district of the US house of representatives

Problems 2 and 3: The following are the colors of dress worn by students in a class of 20. Make a stem-leaf plot and a frequency table for it: G1, G2, G3, etc denote different kinds of green and similarly for the other colors.

G1 Y1 Y2 R1 B1 G2 G2 R2 Y1 B1 B2 Y2 R1 R2 G2 G2 G1 Y2 B2 R2