

Review for Test 1:

Thursday, November 7, 2019 10:45 AM

quick list of topics:

- ①.1
 - population vs sample
 - types of variables
 - qualitative vs quantitative
 - discrete vs continuous
 - univariate / bi / multi
 - experimental unit
- ①.3
 - graphs - histograms - describing characteristics
 - symmetry (skew) ↙ unimodal
 - unimodal / bi / multi / uniform
- ①.4
 - misleading graphs
 - poorly defined categories
 - bad vertical scale
 - pictographs
 - inappropriate 3D
- ②.1
 - measures of centre

- mean and median (may need to calculate, may ask conceptual questions)

2.2 measures of variability

- range and standard deviation

↑
calculate
conceptual

↑
concept only
(what happens if
all data points increase
by certain amount)

2.3 Tchebysheff and Empirical

- Tcheby formula given on formula sheet
- Empirical - you need to know the percentages

2.4 measures of relative standing

Z-score formula is on formula sheet (populations)

likelihood of various Z-scores

$$|Z| > 2$$

$$|Z| > 3$$

3.1 sampling plans

- you need to know the names of the 4 types

- if given scenario, state whether sample is likely to be representative

- is it a convenience sample?

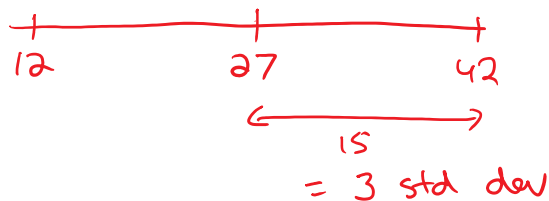
3.2) observational vs experimental studies

3.3) uses and misuses of statistics

A data set has a mean of 27 and a standard deviation of 5. What can you say about the number of measurements between 12 and 42 if

- a) you know nothing about the shape of the distribution
- b) you know the distribution is unimodal and symmetrical

answer: a) Tcheby $\geq \left(1 - \frac{1}{k^2}\right)$



$$\geq 88.7\%$$

b) Empirical: for 3 std dev $\sim 99.7\%$

A geologist took the following data for eruptions of the Old Faithful Geyser in Yellowstone Park

duration (seconds)	height (feet)
246	140
237	157
122	140

a) name a variable and state what type it is

duration - quantitative, discrete

b) is this data univariate, bivariate, or multivariate?

c) what is the experimental unit?

an eruption