

Statistics Section 1:

Thursday, March 9, 2017

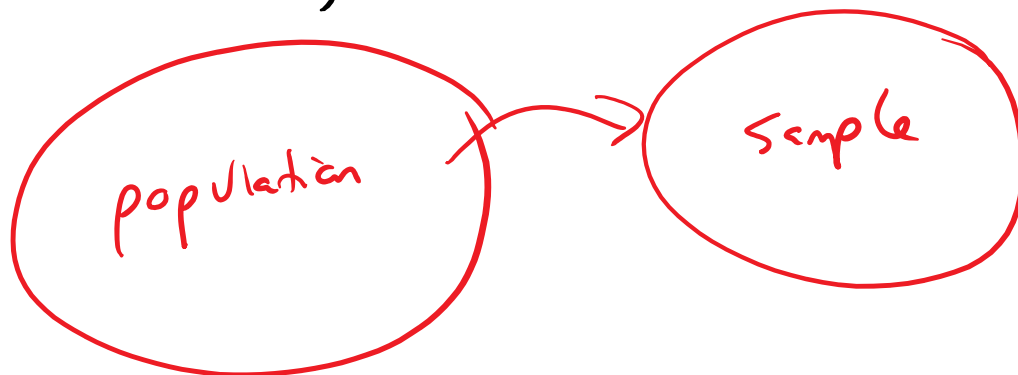
1:33 PM

Centre and Spread of Data

Test 3: Friday, March 17
but will cover Sections
31.7 - 31.10 and
Statistics Section 1
(not Section 2 as I had
originally said)

statistics \equiv a branch of applied mathematics concerned with the collection and interpretation of data

ideas of collecting data:



population \equiv the entire set of measurements of interest

sample \equiv a subset of the set of measurements of interest

\Rightarrow must ensure as far as possible

that sample is representative

variable - a characteristic that either changes over time or changes for different individuals/objects under consideration

quantitative variables - measure is a numerical quantity

two types:

① discrete: can only assume certain values

number of students: 22, 23, 24
↑
23½
not allowed

② continuous: can be any real number

examples: mass
speed
density

measures of centre:

numerical measures - a way to summarize a data set

- particularly of use when comparing two data sets whose values look very similar

mean:

also known as the average

- sum of data points divided by number of points

population mean

$$\mu = \frac{\sum x_i}{n}$$

Greek letter "mu"

where x_i = one of the data points
 n = number of data points

sample mean

$$\bar{x} = \frac{\sum x_i}{n}$$

one problem with mean: greatly affected by outliers data points far from the

majority of points

median - if you write your data as an ordered list, it's the middle value

→ if you have an even number of data points, it's the average of the two middle points

example: starting salary for Mech graduates

\$ 60 000
\$ 80 000
\$ 50 000
\$ 35 000
\$ 1 200 000

find mean and median:

mean: \$ 285,000

median: \$ 60,000