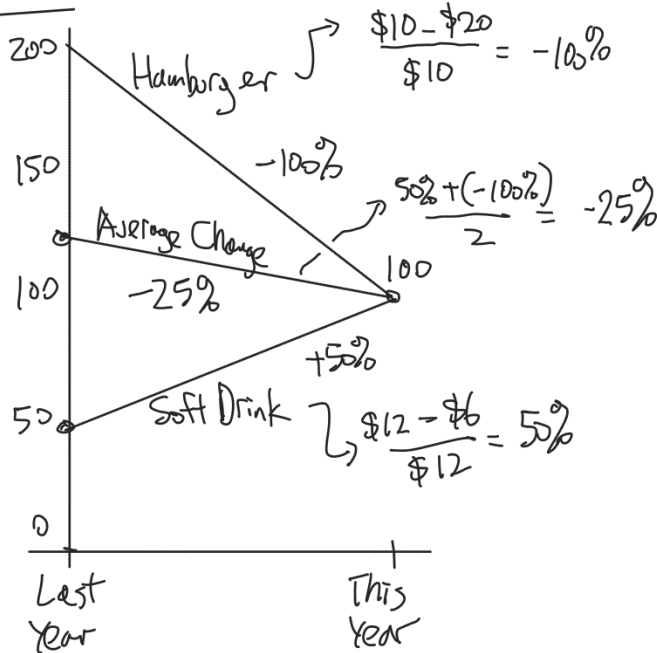
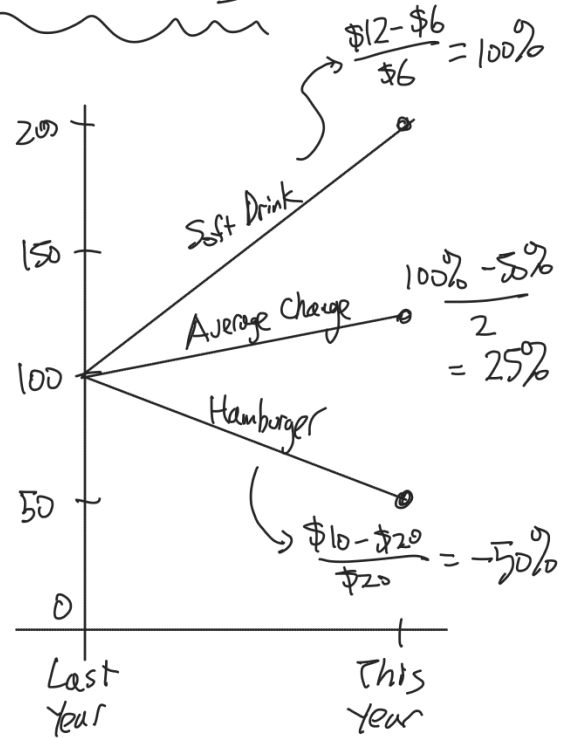


26 Uses and Abuses of Statistics

REVIEW



Use this year as the base



Use last year as the base

INTRODUCTION OF STATISTICS

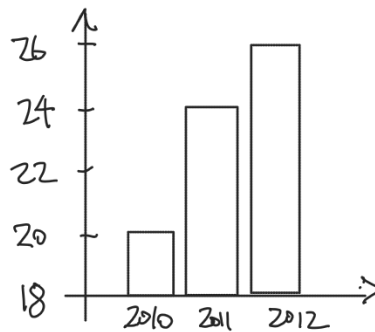
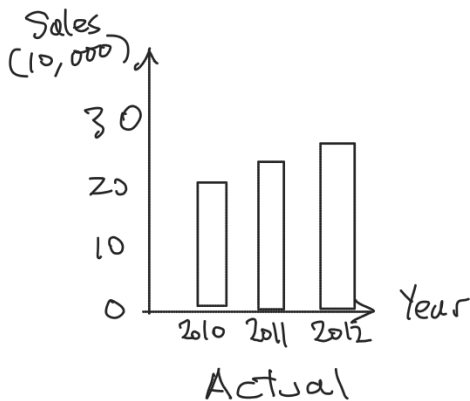
4 stages:

1. Collection of data
2. Organization of data
3. Presentation of data
4. Analysis of data

- Interviews
- Observation
- Experiment
- Existing Reports

ABUSES OF STATISTICAL GRAPHS

Year	2010	2011	2012
Sales	20,000	24,000	26,000



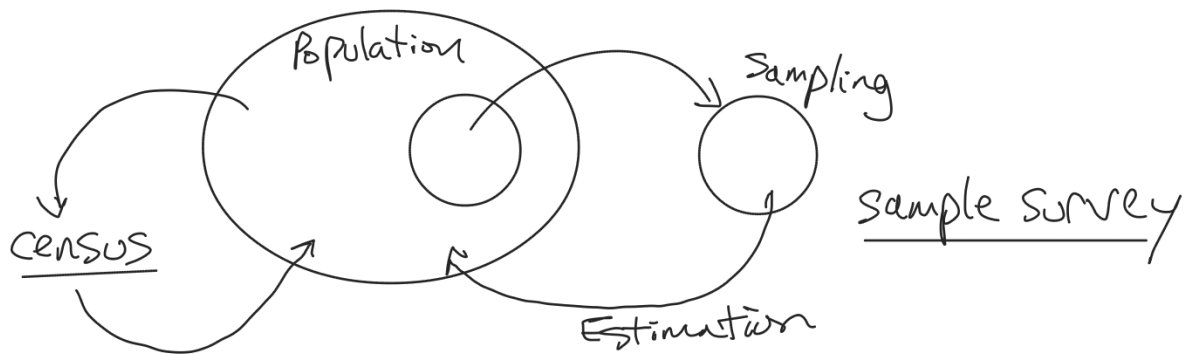
Looks great, but not true

Statistical Surveys

The target of a survey is called the population

A survey to cover the whole population, is called a census

A survey to cover samples, is called a sample survey



Collection of data : Questionnaire Design

1. Simple
2. short
3. easy to answer
4. specific/precise
5. straight forward
6. Arrange in proper order

Probability Sampling

1. Simple Random Sampling : select at random
2. Systematic Sampling : every 1 in k sample is selected
3. Stratified Random Sampling : Random select from each subgroup. Subgroup examples : male/female, age, etc.

Non Probability Sampling

Convenience Sampling	(最方便就手)
Judgement Sampling	(researcher 決定)
Quota Sampling	(限制人數)
Snowball Sampling	(選出合適的)
Voluntary Sampling	(自願)

Uses of Statistics (Examples)

1. Product sample by manufacturers (Qc)
2. Census conducted by government
3. Education Needs of a society
4. New product development
5. Finance Investments

ABUSES

1. Mean, mode, and median $\Rightarrow$ average

Assessing the correctness of statistics investigation

1. Sponsor
2. Sample size
3. sample method
4. Data collection method
5. Questionnaire
6. Response ratio
7. Interpreting the findings

