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## Lecture 4a: Practice Problems

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# Practice: Paired Data?

1. Which of the following examples involve the comparison of paired data?
  - If so, on what are we pairing the data?

## Practice: Paired Data?

- a) In Baltimore, a real estate practice known as “flipping” has elicited concern from local and Federal government officials
  - “Flipping” occurs when a real estate investor buys a property for a low price, makes little or no improvement to the property, and then resells it quickly at a higher price
  - This practice has raised concern, because the properties involved in “flipping” are generally in disrepair and the victims generally have low incomes
  - Fair housing advocates are launching a lawsuit against three real estate corporations accused of this practice

## Practice: Paired Data?

- a) In Baltimore, a real estate practice known as “flipping” has elicited concern from local and Federal government officials
- As part of the suit, these advocates have collected data on all houses purchased by these three corporations which were sold in less than one year after they were purchased
  - Data were collected on the purchase price and the resale price for each of these properties
  - The data were collected to investigate whether the resale prices were, on average, higher than initial purchase price
  - A confidence interval was constructed for the average profit in these quick turnover sales

## Practice: Paired Data?

- b) Researchers are testing a new blood pressure-reducing drug; participants in this study are randomized to either a drug group or a placebo group
  - Baseline blood pressure measurements are taken on both groups and another measurement is taken three months after the administration of the drug/placebo
  - Researchers are curious as to whether the drug is more effective in lowering blood pressure than the placebo

## Practice: Paired Data?

- c) Researchers are interesting in the impact of a vegan diet on risk factors for coronary heart disease (CHD) in subjects with a family history of CHD; researchers randomly select 100 such families with more than one child and randomize two siblings from each family to either a vegan diet, or an omnivorous diet (one sibling on each diet); these diets, prescribed by a nutritionist, are to last for six weeks
- Baseline CHD risk factor measurements are taken (BP, cholesterol level, percent body fat) on each participant
  - Follow-up CHD risk factor measurements are taken at the end of the six-week diet period
  - Changes in risk factor levels are to be compared between those on the vegan diet and those on the omnivorous diet