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MATH 263H

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Assignment #4

#3.CE.8

1. (0.2565, 0.3305)
2. Any value between (0.2565, 0.3305) since those values would be within the acceptable parameters.

#4.1.14

1. Explanatory variable (manipulated or observe changes in, independent variable): Type of diet, Mediterranean.

Response variable (what changes as a result, dependent variable): Better memory and cognitive skills based on the type of diet.

1. Location: could be eating a Mediterranean diet but be located on different continents.

People 🡪Mediterranean Diet (Located in Greece) or No Mediterranean Diet (Located in Asia) 🡪 Memory and cognitive skills.

Diagram:

#4.1.22

1. Explanatory variable: Income. This is categorical.
2. Response variable: Happiness, also categorical.
3. Yes, the data does provide indication that there is association between happiness and income level as we can tell that the percentages are very different between the three groups.
4. No, there may be a confounding variable such as location. Someone who lives in place A may not need as much money to be as happy as someone else living in place B.

#4.2.30

1. No. Since the names are chosen well before hurricane season, it is impossible to determine if the names have any effect on the deaths caused by hurricanes. The names do not tell us what categories of hurricanes will occur.
2. Yes, as subjects were randomly assigned.

#4.2.32 (skip part d)

1. Experiment as the participants were randomly assigned pills.
2. Double blind is when the participant and the person giving the participant the treatment are both unaware of what kind of treatment they are getting/giving. The purpose of double blind is to remove any sort of bias or placebo effects.
3. A placebo acts as a controlled variable, to see if there is any effect when there is no effect to be had.

#4.2.40

1. Block the location where the volunteers have the disease.
2. Randomly assign half of each location. So 60 of the small intestines, 50 of the small intestine and colon, and 40 of the colons.
3. Randomized block design will help to remove bias as data from colons would collide with the data from the small intestines if they do not have the disease in both.