Intro to Statistics - Classwork

1. A company sends a shipment of 50,000 cell phones to a store. The store is not sure if the shipment meets company standards. They randomly select 100 phones and compute the average that meet company standards.

Identify the following variables in this example: Population, sample, statistic.

*Population – 50,000 cell phones.*

*Sample – 100 phones.*

*Statistic – the average of the sample that meet company standards.*

1. A study was conducted where researchers collected data to examine the relationship between air pollutants and preterm births in Southern California. During the study air pollution levels were measured by air quality monitoring stations. Length of gestation data were collected on 143,196 births between the years 1989 and 1993, and air pollution exposure during gestation was calculated for each birth.

Identify the population of interest and the sample in this study.

*Population – all the births between the years 1989 and 1993.*

*Sample – 143,196 births between the years 1989 and 1993.*

1. Classify each type of data as numerical (continuous or discrete) or categorical (ordinal or nominal)
2. The number of candidates for a job – *numerical, discrete*
3. Suitability for that job: excellent, very good, good, not suitable – *categorial, ordinal.*
4. The state that the candidate lived in- *categorical, nonimal.*
5. The length of a table – *numerical, continuous*
6. Give one real life example for when you would take a sample of a population in each of the following ways:
7. Simple random sample – *How many people like pizza*.
8. Stratified - *How many students walk to school, based on living area*.
9. Cluster - *How many children are in family, based on countries.*
10. The time it takes to travel between two places is measured against the mode of transport ie. Train, car, bus, bike, walk. The variable (mode of transport) is most likely to be the response or explanatory variable?

*Explanatory variable*

1. A student believes that if she studies for three extra hours per week she can improve her math grade by 20 points. She sets aside extra time each week to see if she is correct when she takes her next math exam, which will be Friday.

Identify the **response** variable:

1. The time she spent studying
2. The day of the week she takes her exam
3. The grade she gets on the exam
4. None of the above; there is no response variable
5. If you were to plot a scatter plot, which variable (explanatory or response) is shown on the x axis and which is shown on the y axis?

X axis – explanatory

Y axis - response