

Math 153 - Quiz 1

January 17, 2019

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (1 point) Suppose we are interested in determining the average body temperature of healthy adult human beings. We select 106 healthy adults and measure their body temperatures at 12am. In this context, what is the population?

THE POPULATION IS THE COLLECTION OF ALL
HEALTHY ADULT HUMAN BEINGS.

2. (1 point) We would like to select simple random samples 106 adults. We do so by choosing samples of 53 men and 53 women at random. Will these be simple random samples? Explain.

NO, NOT EVERY SAMPLE OF 106 ADULTS IS JUST AS
LIKELY AS ANOTHER. FOR EXAMPLE, A SAMPLE OF 106 MEN
IS IMPOSSIBLE, BUT LOTS OF $53/53$ SAMPLES ARE POSSIBLE.

3. (1 point) Are the data discrete or continuous?

(a) body temperatures CONT.

(b) sizes of samples of healthy adults DISCRETE

4. (2 points) Determine the level of measurement. Choose from nominal, ordinal, interval, or ratio.

(a) body temperatures INTERVAL

(b) zip codes NOMINAL

(c) college rankings ORDINAL

(d) weights of dogs RATIO

Turn over.

5. (1 point) During the European Upper Paleolithic period (roughly 30,000 years ago), human life span and artistic expression both rose very rapidly. Does this imply that having longer lives made humans more artistic? Explain.

- No, CORRELATION DOES NOT IMPLY CAUSATION.

6. (4 points) What type of sampling is described in each situation. Choose from random, systematic, convenience, stratified, or cluster.

- (a) We separate the countries of the world into 5 groups: Asia, Africa, Europe, Americas (North or South), Other. We select 6 countries at random from each group.

STRATIFIED

- (b) Restaurant customers place their business cards into a bowl. At the end of the day, the cards are mixed up and one is selected.

RANDOM

- (c) A couple are thinking about their monthly budget. They separate their expenses into 6 different categories. They pick one of those categories by rolling a die, and they look carefully at all expenses in the chosen category.

CLUSTER

- (d) At an archaeological dig site, a scientist collects a soil sample every 20 centimeters.

SYSTEMATIC