

HW for ML #1 - Representative Sample

NAME Key

For exercise 1 – 4, tell whether the sample is representative of the population.

1. You want to know what type of music students at your school like best. You ask a group of your friends which music they like best. No, your friends are not representative of the sample

2. You want to know which type of food students at your school like best. You ask every 20th student in your school yearbook. Yes, it's systematically random.

3. You want to know how many hours students at your school spend on the computer each day. You ask students from different grades as they leave school. Yes

4. You want to know how many hours students at your school exercise each week. You ask the members of the soccer team how often they exercise each week. No. Soccer team provides bias to sample.

5. Suppose you are taking a poll of students in your grade to see whom they are going to select in the election for president of your class. Describe one way you could find a sample that is representative of the population.

Randomly select names by choosing every fifth name from a list of names of students in your class.

6. A student is trying to determine the average length of a song in her large music library. She randomly selects 20 songs and finds that the mean length is 4 minutes 9 seconds. Then, she randomly selects another 20 songs and finds that the mean length is 3 minutes 52 seconds. What would you expect the mean length of a third set of 20 songs would be? Why? about 4 minutes. because this is between the means of the 1st two samples.

For exercises 7 – 9, use the information about the numbers of cats and dogs that were adopted at a local shelter each month last year.

Cats	12	13	16	18	21	15	14	13	15	22	19	26
dogs	25	30	38	29	27	40	33	26	32	34	41	29

7. What is the mean number of cats adopted each month? 17 cats
 $203 \div 12$

8. What is the mean number of dogs adopted each month? 32 dogs
 $384 \div 12$

9. A worker knows that either 20 cats or 20 dogs were adopted one month recently. Based on your answers to exercise 7 and 8, do you think it was 20 cats or 20 dogs? Explain. 20 cats
20 is closer to the mean for cats than dogs