Integrated Math 3. 2.2 Homework **Name:** KEY

Date:_____ **Period:**_____

Choose a term from the box that best completes each statement.

convenience sample	subjective sample	volunteer sample
simple random sample	stratified random sample	cluster sample
cluster	systematic sample	parameter
statistic		

1. A professor divided his class into females and males, then randomly selected a sample from each group. The professor obtained is a stratified random sample.
2. The manager at a discount store determines the mean salary of all of the store workers. The mean salary is an example of a parameter because it describes all of the workers.
3. John is asked to select a sample of his favorite foods from the school cafeteria. This sample is an example of a subjective sample.
4. A quality control specialist tests every 100th tablet that comes off the line. This sample is an example of a systematic sample.
5. In order to get a set of data of girl's heights, Risa uses the heights of all the girls in her class. This is an example of a convenience sample
6. A college randomly selects 100 out of the 600 students who have taken the GRE exam and records their scores. The mean of these test scores is a statistic because it describes a sample.
7. A city manager randomly selects one block in the city and surveys all of the residents of that block. This type of sample is a cluster sample.
8. An online newspaper asks its readers to answer a question about their satisfaction with the content of the paper. This data collected from the survey results represents a volunteer sample.
9. A theater owner randomly chooses 15 different customers to receive free tickets to the next show. This sample is a simple random sample
10. A researcher wants to collect data from a state. He divides the state into 16 regions and randomly chooses one of the regions to interview all of its residents. Each of the 16 regions is an example of a cluster.

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11. Select a subjective sample of four items from the data set that best represents the mean of the data set. Explain your method for selecting the sample.

The heights (feet) of ten buildings in a city

102	54	76	95	260	37	65	48	27	85

Answers will vary

54, 65, 76, 95

Middle values in the sample

12. Use your calculator to generate four random numbers between 1 and 10. Use those numbers to create a random sample from the data set.

randInt(1,10,4)

3, 8, 10, 3

Dealership	1	2	3	4	5
Price	24,500	32,000	27,750	23,450	26,875

Dealership	6	7	8	9	10
Price	66,000	22,750	23,650	24,735	37,500

Answers will vary

27,750
23,650
37,500
27,750

***Determine whether each study has a source of bias. If so, describe the bias and explain why the bias makes the sample unrepresentative.**

13. A survey is mailed to all voters in Albany asking, "Will you vote in the upcoming election?"

No bias

14. A survey is mailed to voters in Albany who make more than $100,000 per year asking, "Will you vote in the upcoming election?"

Bias

The survey is only mailed to voters who make more than $100,000 per year. This is not representative of the entire population

15. A medical company uses healthy patients to test their drugs for side effects.

Bias

This excludes all unhealthy patients, who may show different side effects.

16. A medical company uses sick patients to test their drugs for side effects.

Bias

This excludes all healthy patients, who may show different side effects.

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17. a. Use the data set to select a stratified random sample that contains 16 data values.
b. Use the data set to select a stratified random sample that contains 24 data values.

The data set displays the number of cars crossing an intersection at 8 different times during 4 different days.

Number of Cars Crossing an Intersection			
Day 1	Day 2	Day 3	Day 4
124	234	184	192
213	249	253	268
276	281	279	264
302	321	314	319
354	342	349	368
312	324	313	305
297	284	287	279
251	264	255	256

a) use 4 from each day → answers will vary

b) use 6 from each day → answers will vary

18. Create two different cluster samples for the data set. Explain your method for selecting each sample.

Scores on Last Five Math Tests			
Hugo	Miriam	Anastasia	Nick
85	79	82	83
78	76	72	79
69	72	71	67
82	86	78	84
73	75	72	71

Answers will vary
scores from 1 student — cluster

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***You will use the following data for the remaining problems:**

Twenty-four professional athletes are participating in a charity golf tournament. Each golfer has been given an ID number from 01 through 24. Golfers 01 through 12 are professional football players, and golfers 13 through 24 are professional baseball players. Par for the course is 72. The table shows each golfer's score after the first round.

Golfer ID Number	Score	Golfer ID Number	Score
01	72	13	79
02	75	14	85
03	69	15	67
04	78	16	75
05	80	17	68
06	68	18	76
07	81	19	68
08	72	20	69
09	74	21	71
10	77	22	76
11	75	23	70
12	77	24	74

19. Create a simple random sample of 6 scores from the table. Explain how you created your sample. Find the average of the sample.

generator or table

20. Create a stratified random sample of 6 scores from the table. Explain how you created this sample. Find the average of the sample.

Group football players & baseball players

randomly select 3 from each

21. Create a cluster sample of 6 scores from the table. Explain how you created this sample. Find the average of the sample.

divide scores into clusters so there are 6 scores in each; randomly select 1 cluster

22. Create a systematic sample of 6 scores from the table. Explain how you created this sample. Find the average of the sample.

randomly choose 1 golfer from 1-6, then select every 4th golfer after that

23. The actual average score is 74. Which of your sample averages was closest to the actual average? Is this what you expected? Explain.