

Statistics and Mathematical Modeling  
Summer Review Packet  
Gaithersburg HS

All of the topics covered in this packet were taught and tested on the Algebra High School Assessment. They will also be covered as part of the first semester of SAMM A. If you encounter any difficulty as you work through these problems, make a note/highlight/etc where the problem exists so that we can discuss these issues when school starts.

Topics include: Simple Probability, Measures of Central Tendency, Simulation, Sampling Methods, Reading/Interpreting Charts & Graphs

1) Richard surveys a room of 26 adults and finds that of the 12 men, 5 are married and 7 are single. Of the 14 women, 8 are married and 6 are single. Richard randomly assigns each person a number and places a card with each number in a hat. What is the probability that Richard will select a card with a number assigned to a married man?

2) In a class of 15 students, each student has a different test score. The median test score is 79. How many students scored higher than 79?

3) Jeremy plays soccer. He scores a goal in 40% of his games. Jeremy wants to design a simulation using a spinner to predict the probability that he will score a goal in 8 out of 10 games. Which simulation design has an appropriate device and a correct trial?

- A) Divide a spinner into 5 equal sections labeled 1, 2, 3, 4, and 5. Spin the spinner 8 times.
- B) Divide a spinner into 5 equal sections labeled 1, 2, 3, 4, and 5. Spin the spinner 10 times.
- C) Divide a spinner into 4 equal sections labeled 1, 2, 3, and 4. Spin the spinner 8 times.
- D) Divide a spinner into 4 equal sections labeled 1, 2, 3, and 4. Spin the spinner 10 times.

4) The president of the student government wants to survey the students in the school about their satisfaction with the 36 after-school activities. There are 1,000 students in the school—200 freshmen, 200 sophomores, 300 juniors, and 300 seniors. The president suggested three different sampling methods.

Method A: Randomly choose three students from each of the 36 after-school activities for the survey.

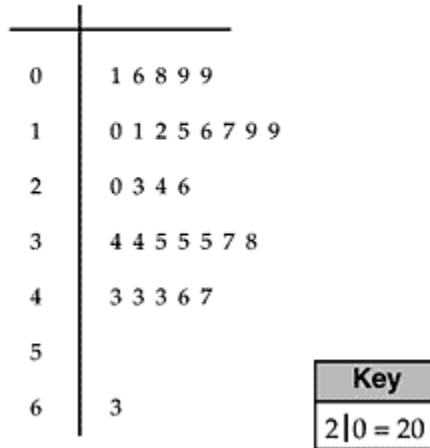
Method B: Randomly select 100 students from the honor roll list to survey.

Method C: Randomly select 20 freshmen, 20 sophomores, 30 juniors, and 30 seniors for the survey.

Describe why each of the three methods either IS or IS NOT a good method to use.

5) José conducted a survey of 30 people to determine how many times a person ate at a restaurant between January and July. The results are shown in the stem-and-leaf plot below.

### SURVEY RESULTS



Based on the survey results, what is the probability of randomly selecting a person who ate at a restaurant 20 or more times between January and July?

6) The table below shows the average life span of United States currency.

**LIFE SPAN OF UNITED STATES CURRENCY**

Type of Currency	\$1	\$5	\$10	\$20	\$50	\$100
Average Life Span (in years)	1.5	2	3	4	9	9

According to the data, which of these conclusions can be made about the life span of United States currency?

- A) The mode is 9 years.
- B) The range is 7 years.
- C) The mean is 4 years.
- D) The median is 3 years

7) The table below shows the points scored by a basketball team during its first 5 games.

**POINTS SCORED BY BASKETBALL TEAM**

Game	Points Scored
1	51
2	61
3	67
4	70
5	66
6	?

After the first 6 games, the team had a mean score of 64 points per game. How many points did the basketball team score in game 6?

8) The table below shows the number of students in a high school by grade level.

Grade Level	Number of Students
9	400
10	300
11	150
12	150

A student is selected at random. Which spinner below would best simulate the grade level of the student?

