2A-2D Summative Review:

2A: Relative Frequencey

2B: Theoretical and Experimental Probability

2C: Random Outcomes

2D: The Counting Principle, Permutations, and Combinations

1. Rewrite each decimal or fraction as a percent:

a) 0.42 b) 0.004 c) $\frac{65}{300}$ d) $\frac{12}{30}$

2. The chart below shows the number of students in each grade at GHS.

Freshman	Sophomores	Juniors	Seniors
150	130	160	85

Write each grade total as a percent of the total number of students at GHS.

Write each grade's percent as an amount of degrees of a circle.

Create a relative frequency circle graph of the number of students at GHS.

Follow-up questions to # 2:

What is the probability that if you walked past a random student in the hallway that it would be a senior?

Based on your circle graph, if you were to make a new friend today, what grade would that person most-likely be in and why?

3. Suppose you have a fair, six sided die. Find the reduced fraction and probability of the following happening:

a) P(3)

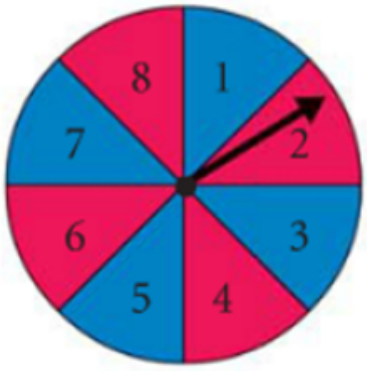
b) P[(2) or (5)]

c) P(not 4)

d) P(odd)

4.

Find the odds in favor of the spinner landing on the following:



a) What is the probability of spinning an even number:

b) What is the probability of spinning a divisor of 12

c) What is the probability of spinning a multiple of 3

d) What is the probability of spinning a divisor of 4

e) What is the probability of spinning a prime number

f) What is the probability of spinning a factor of 10

g) What is the probability of spinning a 9

h) P(number greater than 3)

5. Find the reduced fraction and probability of each.

A card is drawn from a shuffled deck of 52 cards:

a) P(green card)

b) P(diamonds)

c) P(face card)

d) P(ace)

e) P(not a club)

f) P(not a 10 of diamond)

g) P(club or spade)

h) P(red or black card)

i) P(5 of hearts)

j) P(numbered card or club)

6. Give an example of a situation where it is very difficult to make predictions of what may happen next.

7. Suppose that you observed that an ice cream shop has the following flavors:

Chocolate, vanilla, strawberry, chocolate-chip cookie dough, cookies and cream, and cookie monster.

a) Based on the number of flavors that the shop has, what would you assume the probability would be that when a random person walks into the ice cream shop, he or she will purchase vanilla?

b) Do you think that this probability you found in part *a* is reflective of what percentage of people actually buy vanilla? Why or why not?

8. How many three person committees can be chosen from a group of six people?

9. Dylan, Andrew, Hailey, and Jordan ran in a race. In how many different orders can they finish the race?

10. There are 6 things in a hat. How many ways can you pick 2 things from the hat at once?

11. In how many ways can Dylan, Taylor, Sydney, Alyssa, Natalie, and Madison stand in line?

12. How many four digit numbers can you make by arranging the numbers 7, 6, 3, and 5?

13. There are twelve players on the basketball team. How many ways can a starting lineup of five players be chosen?

14. How many permutations can you make from the letters K, C, M, J, and O?

15. A PIN for your ATM card consists of 4 numbers. You can repeat any of those 4 numbers. How many possible PINs can you come up with?

16. Your password for your school computer has to be 3 consonants (non-vowels) followed by 4 digits (0-9) and then finally one special character (!,@,#,$,%,&,*). How many passwords are possible if no consonants may be repeated but any digit can be?