PART I: Try to answer the following questions without the use of a two way frequency table.

1. A standard six-sided is rolled and its outcome noted. Which of the following is the probability that the outcome was less than three or even?

(1) $\frac{2}{3}$ (2) $\frac{1}{3}$ (3) $\frac{5}{6}$ (4) $\frac{1}{6}$

2. Historically, a given day at the beginning of March in upstate New York has a 18% chance of snow and a 12% chance of rain. If there is a 4% chance it will rain and snow on a day, then which of the following represents the probability that a day in early March would have either rain or snow?

(1) 0.30 (2) 0.34 (3) 0.02 (4) 0.26

3. You observe 1000 leaves falling from a tree and record whether they land with their top or bottom showing and find that 583 or 58.3% land with their bottom showing. What approach to probability does this represent?

(1) Empirical Probability
(2) Subjective Probability
(3) Theoretical Probability
(4) None of the above, this is just a math problem

4. In the previous questions, if you are trying to determine whether a leaf will fall with its bottom side showing (event A), what is the collection of events that are "not A" called, including leaves landing with the tops showing, leaves landing on their sides, and any other possible outcomes?

(1) Joint Events (2) Event B (3) Complement of Event A (4) Sample Space

5. A survey was done of students in a high school to see if there was a connection between a student's hair color and her or his eye color. If a student is chosen at random, find the probability of each of the following events.

		Hair Color			
		Black	Blond	Red	Total
Eye Color	Blue	0.15	0.20	0.05	0.40
	Brown	0.25	0.10	0.00	0.35
	Green	0.05	0.05	0.15	0.25
	Total	0.45	0.35	0.20	1.00

(a) The student had black hair.

(b) The student had blue eyes.

(c) The student had brown eyes and black hair.

(d) The student had blue eyes or blond hair. (e) The student had black hair or blue eyes.

PART II: For the questions below, create a two way frequency table using the information given and use it to answer the question.

6. A recent survey of the Arlington High School 11th grade students found that 56% were female and 58% liked math as their favorite subject (of course). If 76% of all students are either female or liked math as their favorite subject, then what percent of the 11th graders were female students who liked math as their favorite subject? Show how you arrived at your answer.

	Female	Not Female	Total
Liked Math			
Did Not Like Math			
Total			

7. A suburban high school has a population of 1376 students. The number of students who participate in sports is 649. The number who participate in music is 433. If the probability that a student participates in either sports or music is $\frac{974}{1376}$, what is the probability that a student participates in both sports and music?

	Participate in Sports	Do Not Participate in Sports	Total
Participate in Music			
Do Not Participate in Music			
Total			

8**.** Evie was doing a science fair project by surveying her biology class. She found that of the 30 students in the class, 15 had brown hair and 17 had blue eyes and 6 had neither brown hair nor blue eyes. Determine the number of students who had brown hair and blue eyes. ***[Don't forget to fill in the column & row titles)***

			Total
Total			