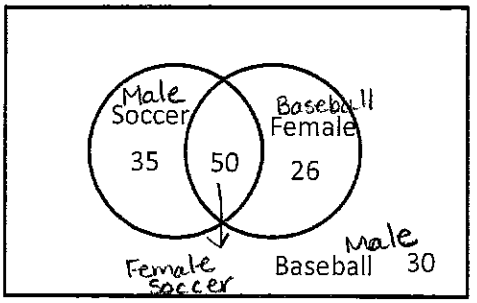
Honors Math II
Unit 10 day 5 ws

Name Key
Period_____ Date_____

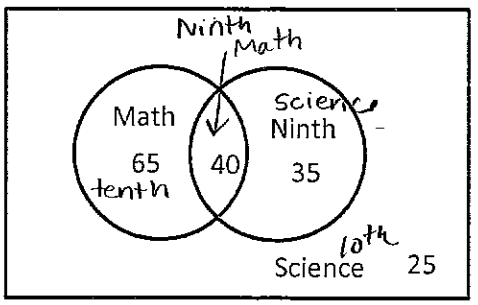
The following Venn Diagram represents the relationship between favorite sport (Soccer or Baseball) and gender (Female or Male).



1. How many people said soccer is their favorite sport? 85
2. How many females are in the data? 76
3. How many males chose baseball? 30
4. What is the probability that a person would say soccer is their favorite sport? P(soccer)= $\frac{85}{141}$

5. What is the probability that a female would say soccer is their favorite sport? ("Out of all females, _____% say soccer is their favorite sport") P(soccer | female) = $\frac{50}{76}$ = 66%

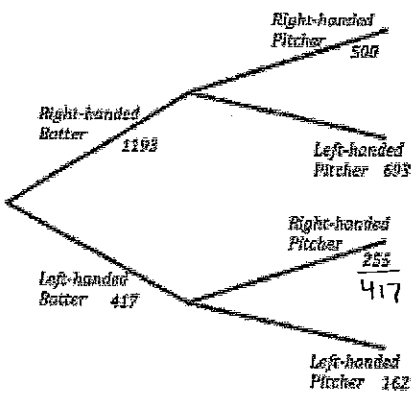
The following Venn Diagram represents the relationship between favorite subject (Math or Science) and grade level (Ninth or Tenth).



6. How many people said math is their favorite subject? 105
7. How many tenth graders are in the data? 90
8. How many ninth graders chose science? 35
9. What is the probability that a person would say sciene is their favorite subject? P(science)= $\frac{60}{165}$ 36.3%

10. What is the probability that a tenth grader would say science is their favorite subject? ("If you are a tenth grader, then the probability of science being your favorite subject is _____%")
P(science | tenth) = 25/90 28%

Given the tree diagram below answer the questions and determine the probabilities. The diagram represents the number of plate appearances during the first month of a minor league baseball season.



11. How many times did a batter come to the plate during this time period? 1610
12. Based on this data, if you are a left-handed batter what is the probability that you will face a right-handed pitcher? $\frac{255}{417}$ = 61%
13. Based on this data, if you are a right-handed batter what is the probability that you will face a left-handed pitcher? $\frac{693}{1193}$ = .5808 ≈ 58%
14. What is the probability that a left-handed pitcher will be throwing for any given plate appearance? 693+162 855/1610 ≈ .531 ≈ 53%
15. What is the probability that a left-handed batter would be at the plate for any given plate appearance? 417/1610 ≈ .2590 ≈ 26%
16. What observations do you make about the data? Is there any amount that seems to be overly abundant? What might account for this?

9.2 Chocolate versus Vanilla

A Solidify Understanding Task

Danielle loves chocolate ice cream much more than vanilla and was explaining to her best friend Raquel that so does most of the world. Raquel disagreed and thought vanilla is much better. To settle the argument, they created an online survey asking people to choose their favorite ice cream flavor between chocolate and vanilla. After completing the survey, the following results came back:

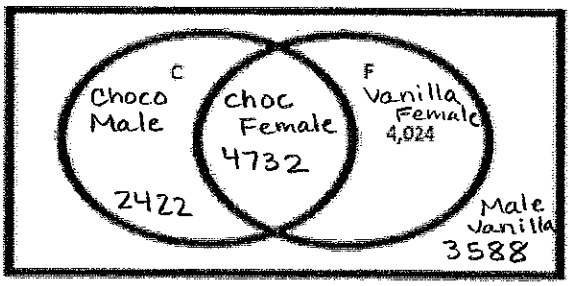
- There were 8,756 females and 6,010 males who responded.
- Out of all the males, 59.7% chose vanilla over chocolate.
- 4,732 females chose chocolate.

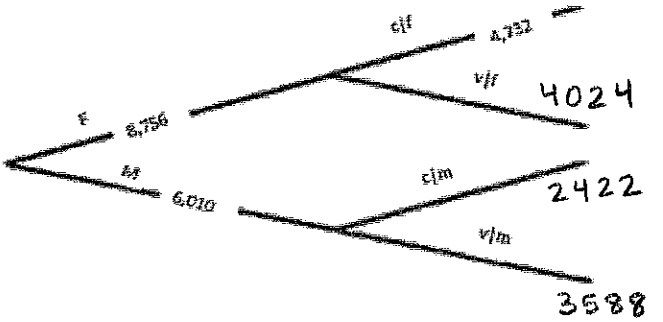
1. Upon first observations, which flavor do you think "won"? _____. Write a sentence describing what you see at 'first glance' that makes you think this.

2. Raquel started to organize the data in the following two-way table. See if you can help complete this (using counts and not percentages):

	Chocolate	Vanilla	Total
Female	4732	4024	8,756
Male	2422	3588	6,010
Total	7154	7612	14,766

3. Organize the same data in a Venn diagram and a tree diagram.

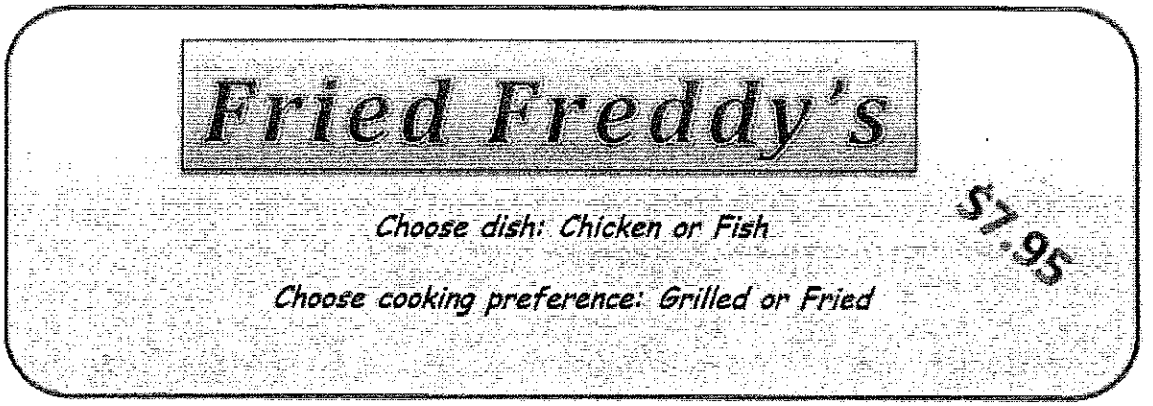




Looking over the three representations (tree diagram, two-way table, and Venn diagram), what probabilities seem to be easier to see in each? What probabilities are hidden or hard to see?

Highlighted (easier to see)	Hidden
Tree diagram	Tree diagram
Two-way table	Two-way table
Venn diagram	Venn diagram

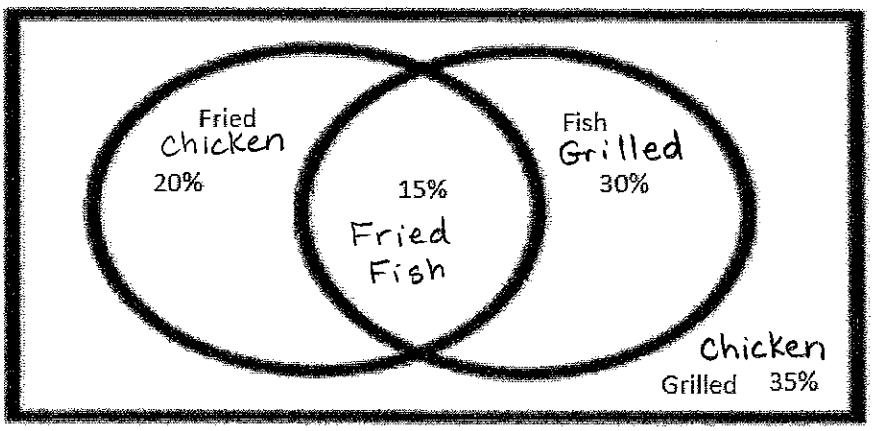
Freddy loves fried food. His passion for the perfect fried food recipes led to him opening the restaurant, "Fried Freddies." His two main dishes are focused around fish or chicken. Knowing he also had to open up his menu to people who prefer to have their food grilled instead of fried, he created the following menu board:



After being open for six months, Freddy realized he was having more food waste than he should because he was not predicting how much of each he should prepare in advance. His business friend, Tyrell, said he could help.

2. What information do you think Tyrell would need?

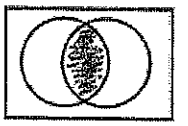
Luckily, Freddy uses a computer to take orders each day so Tyrell had lots of data to pull from. After determining the average number of customers Freddy serves each day, Tyrell created the following Venn diagram to show Freddy the food preference of his customers:



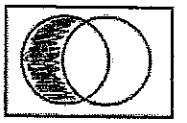
To make sense of the diagram, Freddy computed the following probability statements:

3. What is the probability that a randomly selected customer would order fish?
   P(fish) = 15 + 30 45%
   Shade the part of the diagram that models this solution.

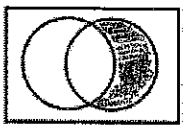
4. What is the probability that a randomly selected customer would order fried fish?
   P(fried ∩ fish) = P(fried and fish) = 15 %
   Shade the part of the diagram that models this solution.



5. What is the probability that a person prefers fried chicken?
   P(fried∩chicken) = P(fried and chicken) = 20%
   Shade the part of the diagram that models this solution.

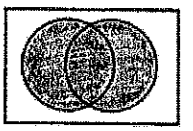


6. What is the estimated probability that a randomly selected customer would want their fish grilled?
   P(grilled and fish) = P(_____) = 30%
   Shade the part of the diagram that models this solution.



7. If Freddy serves 100 meals at lunch on a particular day, how many orders of fish should he prepare with his famous fried recipe? Fried Fish
   (100)(.15) = 15

8. What is the probability that a randomly selected person would choose fish or fried?
   P(fried∪fish) = P(fried or fish) = 65%
   Shade the part of the diagram that models this solution.



9. What is the probability that a randomly selected person would NOT choose fish or fried? 35%
   Shade the part of the diagram that models this solution.