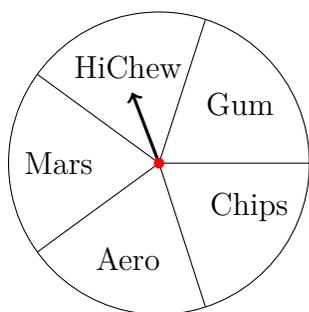


Assignment 2

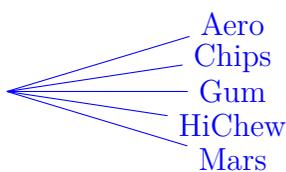
Show all your work

Name: _____
 Number: _____
 Signature: _____
 Score: ___/17

Problem 1: Dad constructed a spinner with five sectors the morning after Halloween for Hamlet and Samlet. Assume that the pointer never lies on a border line, answer the following questions.



a. Draw a tree diagram for spinning the spinner ONCE. Use abbreviation.



b. Construct a table for the sample space for the experiment of spinning the spinner TWICE.

	A	C	G	H	M
A					
C					
G					
H					
M					

c. Write the event of Gum appearing at least once when Hamlet spun the spinner twice. Express as a set of outcomes.

$$\{(A, G), (C, G), (G, G), (H, G), (M, G), (G, A), (G, C), (G, H), (G, M)\}$$

d. Samlet was still too young to have gum. Find the probability for the event of Gum not appearing at all when Samlet spun the spinner twice. Answer as a fraction.

In part c the event of at least one Gum has 9 elements so probability $\frac{9}{25}$. The chance of no Gum is therefore $1 - \frac{9}{25} = \frac{16}{25} = 64\%$.

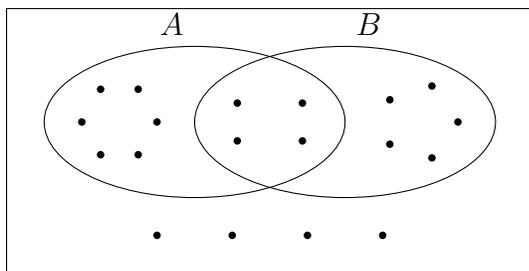
e. Find the probability for the event of getting either a Mars or an Aero (or both) when Hamlet spun the spinner twice. Answer as a fraction.

	A	C	G	H	M
A	*	*	*	*	*
C	*				*
G	*				*
H	*				*
M	*	*	*	*	*

so $\frac{16}{25}$.

Score: /8

Problem 2: Dad drew a big rectangle representing a sample space containing two events, A and B . Assume that the outcomes (as dots) were all equally likely, answer the following questions.



a. $P(B)$ $\frac{9}{19} \approx 47.4\%$

b. $P(A \text{ or } \bar{B})$ $\frac{14}{19} \approx 73.7\%$

c. $P(B | A)$ $\frac{4}{10} = 40.0\%$

d. Are A and B independent?

$P(B) \neq P(B | A)$, so *not* independent.

Score: /5

Problem 3: Hamlet woke up with a high fever and a bad cough. When Sam brought him to the doctor, a rapid antigen test from a throat swab sample was performed. From the table below, draw a probability tree with probabilities assigned on the branches to answer the probability of NOT having a strep throat given a positive test result in two ways, directly from the table and from the tree.

		Streptococcus	
		Have Strep A	No Strep A
Test	+	240	35
Results	-	40	4560

A total of $240 + 35 = 275$ people tested positive. Of those, 35 did not have Strep A, so the chance is $\frac{35}{275} = \frac{7}{55} \approx 12.7\%$.

Score: /4