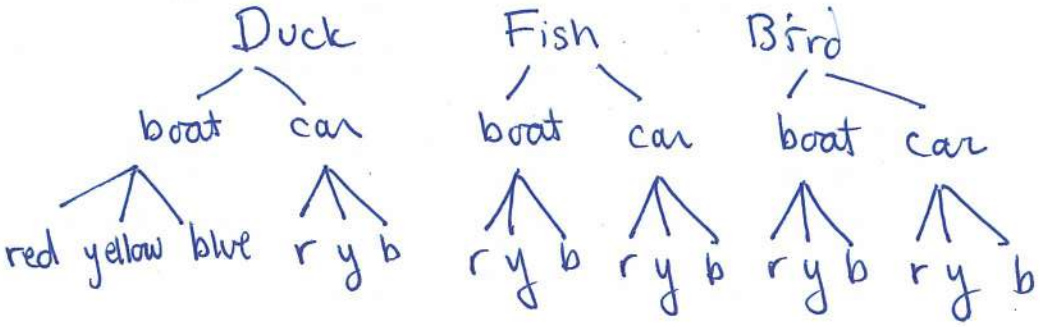
Probability Practice for Quiz **Name:** Answers

1) A store sells a grab bag of 3 children's toys. A bag contains either a duck, a fish, or a bird; either a boat or a car; and either a red, yellow or a blue soap crayon.

a) Draw a tree diagram to show what the grab bags may contain.



Now use your tree diagram to answer:

b) How many different kinds of grab bags can be made? 18

check using counting principle → $3 \cdot 2 \cdot 3 = 18$

c) What is the probability that a bag will contain a duck and a car?

Count on tree → 3 or use counting principle $1 \cdot 1 \cdot 3 = 3$

d) How could you have answered this question without making a tree diagram?

See above!

2) Bridgette is buying file folders to organize her school papers. The choices are endless at *Staples!* The folders come in either letter or legal size and you can get no tab, regular tab or reinforced tab. The folder colors are blue, green red, or yellow. How many different combinations of types of folders are available for Bridgette's organization madness? *Show your math work!*

$2 \cdot 3 \cdot 4 = 24$ choices

(2: size choices; 3: tab choices; 4: color choices)

3) A hat contains separate pieces of paper for each letter of the word LABRADOR. What is the probability of randomly choosing the letter A and then the letter B, without replacing the first letter chosen? *Show your math work!*

8 letters

$$P(A, B) = \frac{2}{8} \cdot \frac{1}{7} = \frac{2}{56}$$

Regents Questions:

4) Given:

Set $U = \{S, O, P, H, I, A\}$

Set $B = \{A, I, O\}$

If set B is a subset of set U, what is the complement of set B?

(1) $\{O, P, S\}$ (3) $\{A, H, P\}$

(2) $\{I, P, S\}$ (4) $\{H, P, S\}$

↑ What is not in set B?

5) A spinner that is equally divided into eight numbered sectors is spun 20 times. The table below shows the number of times the arrow landed in each numbered sector. Based on the table, what is the empirical probability that the spinner will land on a prime number on the next spin?

1] $\frac{9}{20}$ 2] $\frac{11}{20}$ 3] $\frac{12}{20}$ 4] $\frac{14}{20}$

Spinner Sector	Number of Times
1	2
2	3
3	2
4	3
5	4
6	2
7	3
8	1

A prime # was landed on 12 times out of 20 times

6) If I create a computer password using four letters followed by 2 numbers, how many different passwords can I create if I follow the guidelines below?

a) I use any four letters (A-Z) followed by any two numbers (0-9) and repetition is okay.

$26 \cdot 26 \cdot 26 \cdot 26 \cdot 10 \cdot 10 =$

b) I use any four letters (A-Z) followed by any two numbers (0-9) but I don't want to repeat any letters or numbers.

$26 \cdot 25 \cdot 24 \cdot 23 \cdot 10 \cdot 9 =$

c) I want to start the password with a vowel (A, E, I, O, or U) but then I can use any letters and numbers for the rest (and I can repeat letters).

$5 \cdot 26 \cdot 26 \cdot 26 \cdot 10 \cdot 10 =$