Chapter 11 Probability

11.1 Determine Probability Using Tree Diagrams and Tables Homework Assigned: P416 #3, 4, 5, 6, 7, 8, 10 *11, 13	I am now able to:

11.2 Outcomes of Independent Events Homework Assigned: P423 #4, 5, 6, 7, 8, 9, 10, *12 *13	I am now able to:

11.3 Determining Probabilities using Fractions Homework Assigned: P432 #4, 5, 6, 7, 8, 9, 10, 11, 12 *13, *15,	I am now able to:

11.4 Chapter Review Homework Assigned: P437 #1-51	Chapter Checklist I have: ❍ A complete set of notes ❍ Completed all of the assigned homework

Unit Test

Date:_____

11.1 Determining Probabilities Using Tree Diagrams

Probability is the likelihood or chance of an outcome occurring during an event

Some definitions for you to know:

Sample Space: list of all possible results for an event.

eg coin: H, T

Independent Events: the result of one does not influence the result of the other.

Outcomes: possible results. All of them together make up the sample space.

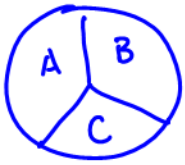
Can you express probability as a formula?

$P(\text{outcome}) = \frac{\#\text{ favourable outcomes}}{\text{total \# of outcomes}}$

We can often determine probabilities from a tree diagram.

A spinner is divided into three equal regions called A, B, C. The spinner is spun twice.

a.) What is the probability of spinning an A on the first spin?

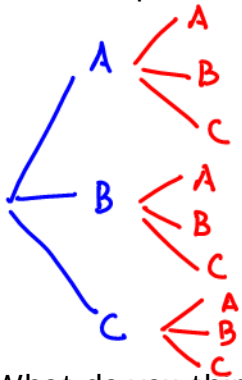


$P(A) = \frac{1}{3}$

Fraction	Decimal	Percent
1/3	0.333....	33.3%

top ÷ bottom ×100

b) We can represent the sample space by drawing a tree diagram.



AA
AB
AC
BA
BB
BC
CA
CB
CC

sample space

c) What do you think the probability of spinning an A followed by a B

$P(\text{A followed by B}) = \frac{1}{9}$

$P(A,B) = \frac{1}{9}$

$P(\text{A and B}) = \frac{2}{9}$

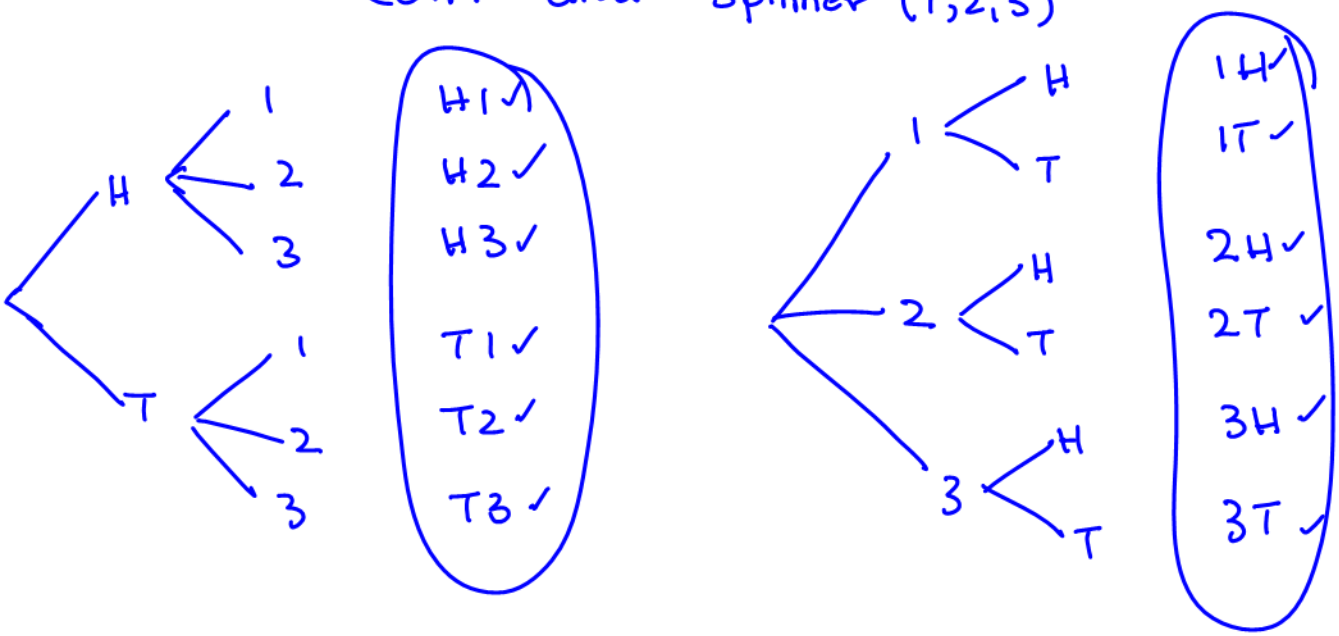
order didn't matter.

We can use probability format to represent this question.

d) What is the probability of getting the same letter on both spins
How can you represent in probability format

$P(\text{same letter}) = \frac{3}{9}$ or $\frac{1}{3}$

coin and spinner (1,2,3)



Determining Probabilities from a Table

Slick Rick McChip loves playing games with dice. He rolls two standard six-sided die. One die is black and one die is red. He always rolls two at a time. We can use a table to create a sample space for this situation.

Black

Red	1	2	3	4	5	6
1	1, 1	1, 2	1, 3	1, 4	1, 5	1, 6
2	2, 1	2, 2	2, 3	2, 4	2, 5	2, 6
3	3, 1	3, 2	3, 3	3, 4	3, 5	3, 6
4	4, 1	4, 2	4, 3	4, 4	4, 5	4, 6
5	5, 1	5, 2	5, 3	5, 4	5, 5	5, 6
6	6, 1	6, 2	6, 3	6, 4	6, 5	6, 6

a) What is the probability of rolling doubles?

$P(\text{doubles}) = \frac{6}{36}$ or $\frac{1}{6}$

b) What is the probability of rolling more than ten when we add the two outcomes together?,

$P(\text{sum} > 10) = \frac{3}{36}$ (do not include 10)

$P(\text{at least } 10) = \frac{6}{36}$ (these include 10)

Represent this situation in probability format

c) What is the probability that the number on the red die is one larger than the number on the black die? $P(\text{red is one more than black}) = \frac{5}{36}$

p416 #3-8, 10

d) What is the probability that the sum of the two numbers is less than 11?

$P(\text{sum} < 11) = \frac{33}{36}$

all except 3

Represent this situation in probability format