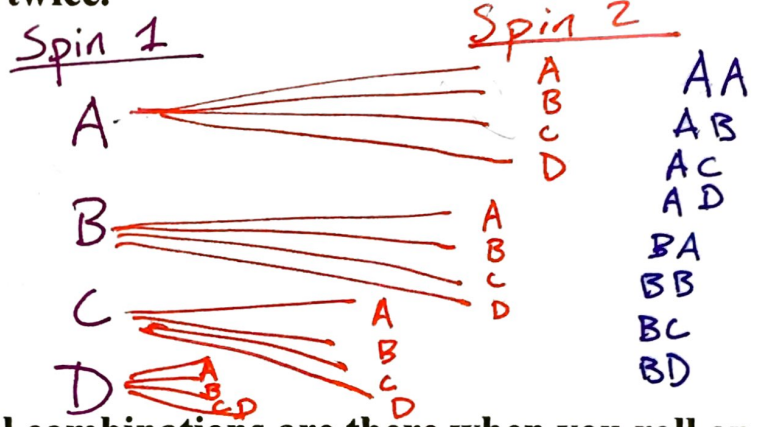
Notes 9-3

Int 1 — **Compound Probability** — **Unit 9**

Review:

1) Draw a tree diagram for a spinner with four equal sections, labeled A, B, C, and D, spun twice.

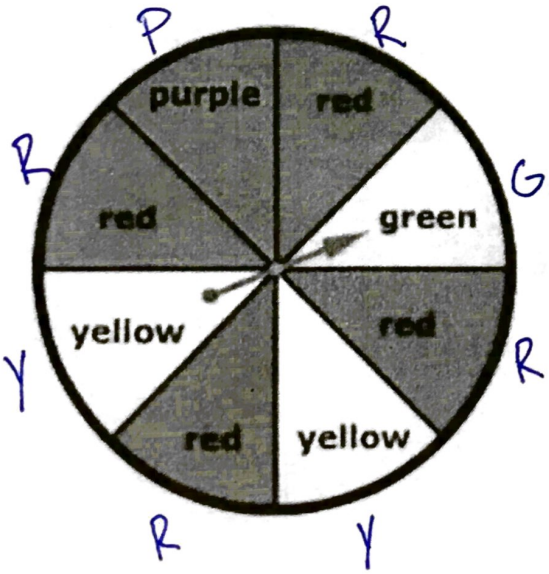


2) How many total combinations are there when you roll an 8-sided die twice?

Roll 1 · Roll 2

$8 \cdot 8 = \boxed{64}$

3) On the following spinner, what is the probability of spinning yellow? Write it as a decimal, fraction, and percent.



$$\frac{\#\text{ of ways event happens}}{\#\text{ of total outcomes}}$$

$$\frac{2}{8} = \frac{1}{4} = .25 = 25\%$$

Int 1 | **Notes 9-3 Compound Probability** | **Unit 9**

VOCABULARY:

Prime Numbers: # that's only divisible by 1 and itself
ex: 2, 3, 5, 7, 11, 13...

Vowel: a, e, i, o, u

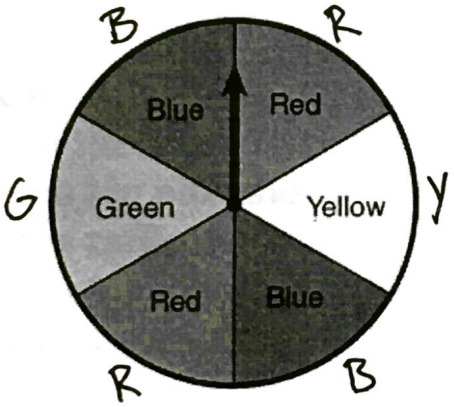
Consonant: Letters that aren't vowels

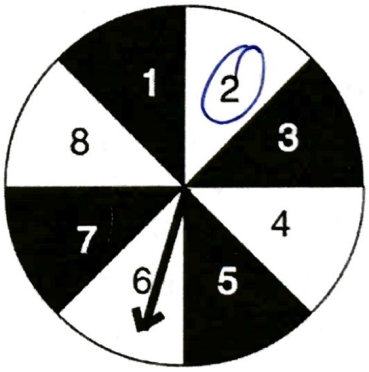
Compound Probability:

Probability of multiple events happening

P(event 1) • P(event 2) • P(event 3)...

Ex. 1) The following spinners were spun at the same time. Find the following probabilities:





a) P(yellow & 7)

P(yellow) P(7)

$\frac{1}{6} \rightarrow \frac{1}{8} = \boxed{\frac{1}{48}}$

b) P(Red & even)

P(red) P(even)

$\frac{2}{6} \cdot \frac{4}{8} = \frac{8}{48}$

$\frac{1}{3} \quad \frac{1}{2} \quad \boxed{\frac{1}{6}}$

c) P(not blue & prime)

P(not blue) P(prime)

$\frac{4}{6} \quad \frac{4}{8} = \frac{16}{48}$

$\frac{2}{3} \cdot \frac{1}{2} = \boxed{\frac{1}{3}}$

Ex. 2) A fun-size package of skittles contains 3 green, 5 orange, 2 purple, 3 yellow, and 1 red skittle. Use the table below to find the probabilities asked for with and without replacement.

	With Replacement	Without Replacement
P(Orange then Orange)	P(orange) P(orange) $\frac{5}{14} \cdot \frac{5}{14} = \boxed{\frac{25}{196}}$	P(orange) P(orange) $\frac{5}{14} \cdot \frac{4}{13} = \frac{20}{182} = \boxed{\frac{10}{91}}$
P(Red then Yellow)	P(red) P(yellow) $\frac{1}{14} \cdot \frac{3}{14} = \boxed{\frac{3}{196}}$	P(red) P(yellow) $\frac{1}{14} \cdot \frac{3}{13} = \boxed{\frac{3}{182}}$

Ex. 3) A teacher is drawing raffle tickets. If there are 28 tickets and each kid only has one ticket in the raffle, what is the probability of the teacher picking Steve and then Henry?

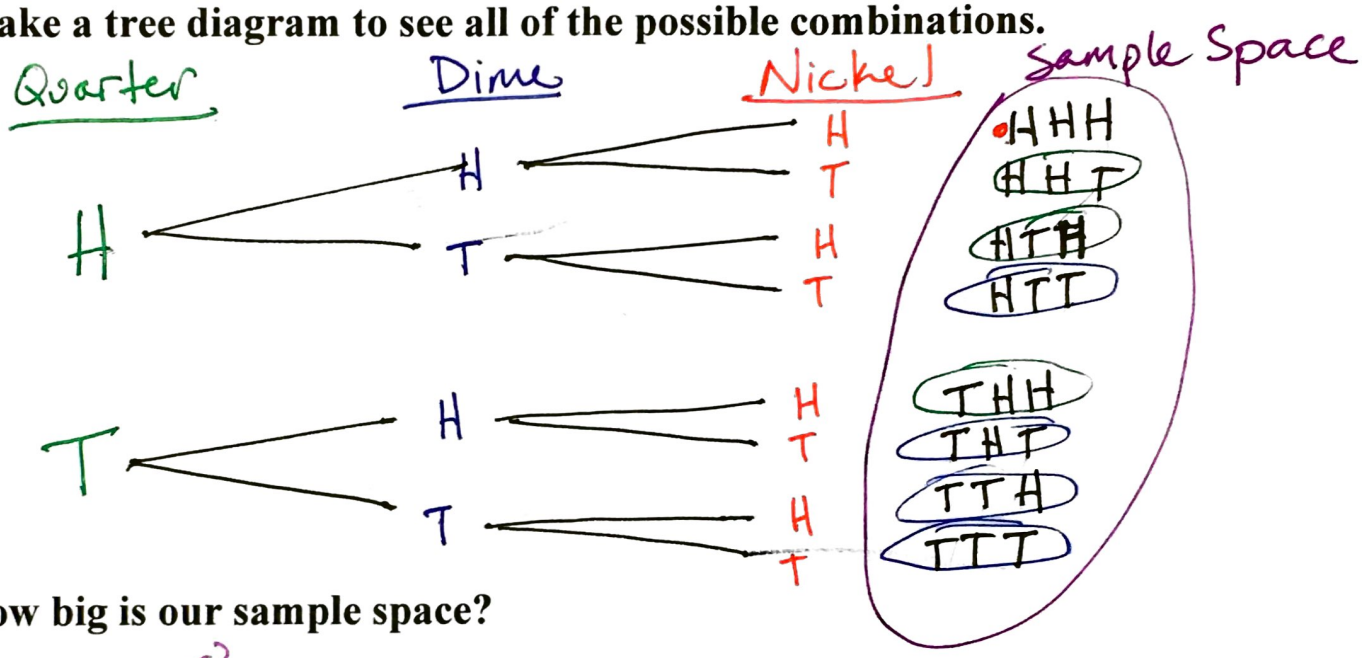
P(Steve) P(Henry)

$\frac{1}{28} \cdot \frac{1}{27}$

Ex. 4) A bag of marbles has 5 purple marbles and 3 green marbles. What is the probability of drawing a purple, putting it back, and then drawing purple again?

Ex. 5) You toss a quarter, a dime, and a nickel.

a) Make a tree diagram to see all of the possible combinations.



b) How big is our sample space?

8

c) Find the P(all heads)

$\frac{1}{8}$

d) Find the P(two heads and 1 tail)

$\frac{3}{8}$

e) Find the P(at least two tails)

$\frac{4}{8} = \frac{1}{2}$