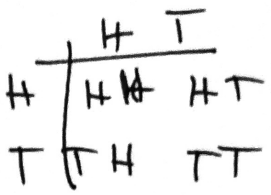
Probability Vocab

Sample Space - Set of all possible outcomes for an experiment



Trial - process of making a single observation in an experiment

Event - Any subset of the sample space

Success - A favorable outcome

Probability - The ratio of the number of favorable outcomes of an event to the total number of outcomes in the sample space

Ex. $P(2 \text{ heads}) = \frac{1}{4}$

Complement - Given an event E, the set of of outcomes in the sample space that is not E.

$P(\text{Not 2 Heads}) = \frac{3}{4}$

Independent - Given 2 events E and F, the chance of E occurring is unaffected by the outcome of F.

Dependent - Given two events E and F, the chance of E occurring is affected by the outcome of F.

Mutually Exclusive - Two events with no common outcomes

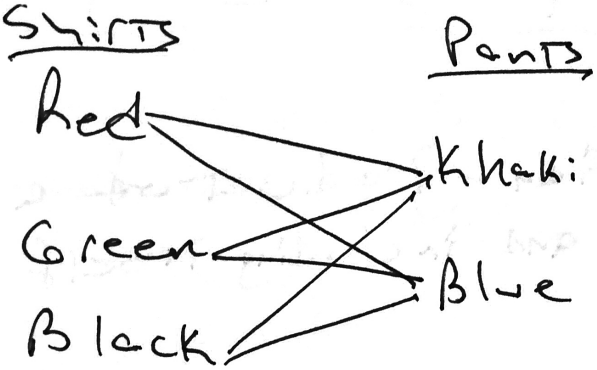
2 Dice

	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

Fundamental Counting Principle

Outfits 3 shirts, 2 pairs of pants

# of different



Red, Khaki
Red, Blue
Green, Khaki
Green, Blue
Black, Khaki
Black, Blue

Fundamental Counting Principle - If an event occurs in m ways and a second event occurs in n ways, Then the two events occur in mxn ways

1. Ice cream shoppe:

3 types cones, 31 flavors

$3 \cdot 31 = 93$

2. License 3 letters, 3 digits

$26 \quad 26 \quad 26 \quad 10 \quad 10 \quad 10 \quad 17,576,000$

L L L # # #

No repeat $26 \quad 25 \quad 24 \quad 10 \quad 9 \quad 8 \quad 11,232,000$

6 racers – finish orders?

$$\underline{6}\ \underline{5}\ \underline{4}\ \underline{3}\ \underline{2}\ \underline{1} = 720$$

Factorial Notation = The product of all numbers up to and including itself.

$6! = 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1$

$4! = 4 \cdot 3 \cdot 2 \cdot 1 = 24$

$26! = 4.03 \cdot 10^{26}$

Cards – 52 cards

4 suits 2 colors

Hearts	Red
Diamonds	Red
Clubs	Black
Spades	Black

Each suit

1 King	4 total
1 Queen	4 total
1 Jack	4 total

Other cards #2–10 and "1" ACE