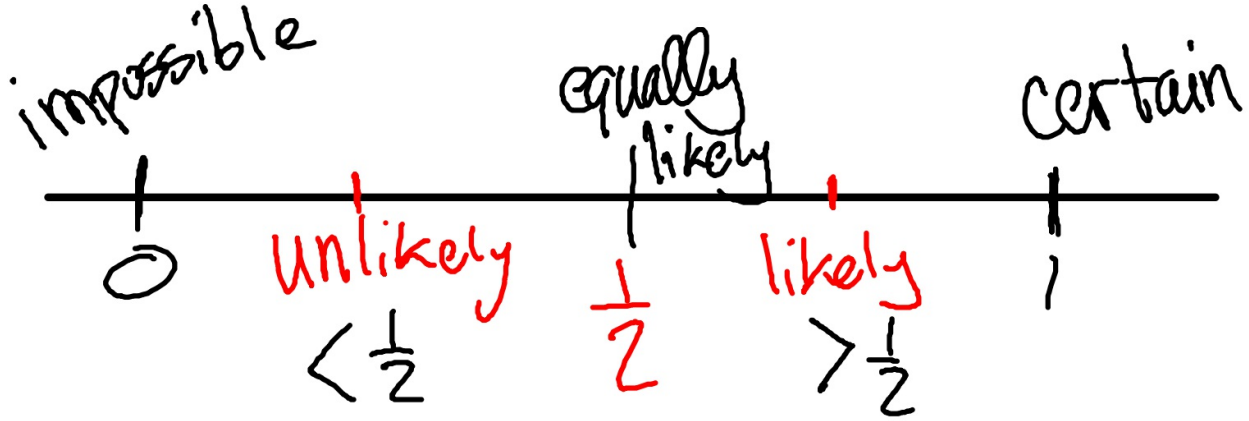
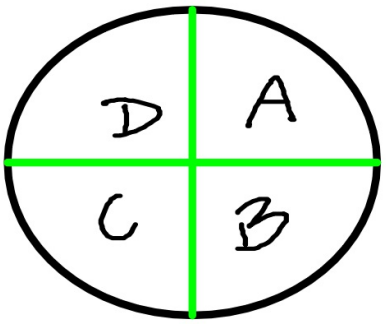
L32 Probability

$$P = \frac{\#\text{ of favorable outcomes}}{\#\text{ of possible outcomes}}$$

→ written as a fraction





a) $P(A) = \frac{1}{4}$

b) $P(A \text{ or } B) = \frac{2}{4} = \frac{1}{2}$

c) $P(\text{not } A) = \frac{3}{4}$

Complements

opposite events
sum is 1

rain and not rain

win and not winning

world ending and not ending

Theoretical

$$\frac{\#\text{ of favorable}}{\#\text{ of possible}}$$

Experimental

$$\frac{\#\text{ of times event occurs}}{\#\text{ of trials}}$$

making free throws

$\frac{1}{2}$ $\frac{3}{10}$

Scott made 1 of 4 PK's.
AJ made 6 of 14 PK's.

$\frac{1}{4}$ $\frac{6}{14}$

$\frac{1}{4} < \frac{3}{7}$ $\frac{7}{28} < \frac{12}{28}$

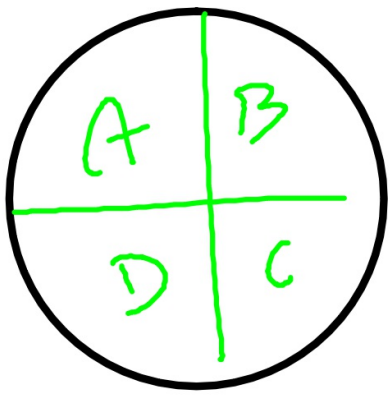
Chance → %

Flip a coin, chance of landing on tails?

50%.

Odds → ratio

favorable to unfavorable



Odds
1:3

$P(A) = \frac{1}{4}$

Chance = 25%.
A

Sample space

all possible outcomes

Sample space of coin flip

Heads Tails

Sample space of flipping a coin twice

2nd flip \ 1st flip	H	T
H	HH	TH
T	HT	TT

Sample space of flipping a coin, and rolling a # cube

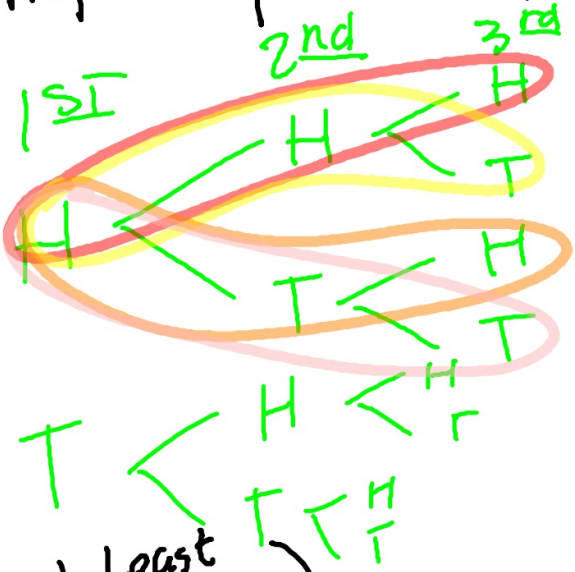
	1	2	3	4	5	6
H	H1	H2	H3	H4	H5	H6
T	T1	T2	T3	T4	T5	T6

T5 : not T5

$P(H4) = \frac{1}{12}$

Odds(T5) $\frac{1}{11}$ 1:11

Sample space of 3 coin flips



HHH ×
HHT ✓
HTH ✓
HTT ✓
THH ✓
THT ✓
TTH ×
TTT

odds 1:1

Chance 50%

$P(\text{at least 2 H and T}) = \frac{6}{8} = \frac{3}{4}$

$P(\text{at least 2 T}) = \frac{4}{8} = \frac{1}{2}$

Probability → fraction

$$\frac{\#\text{ of favorable}}{\#\text{ of possible}}$$

Odds → ratio

favorable : unfavorable

Chance → %

L32 a-g
#6-11, 15-18,
21, 23, 30

Probability → fraction

$$\frac{\#\text{ of favorable}}{\#\text{ of possible}}$$

Odds → ratio

favorable : unfavorable

Chance → %

L32 a-g
#6-11, 15-18,
21, 23, 30