Probability

Theoretical Probability
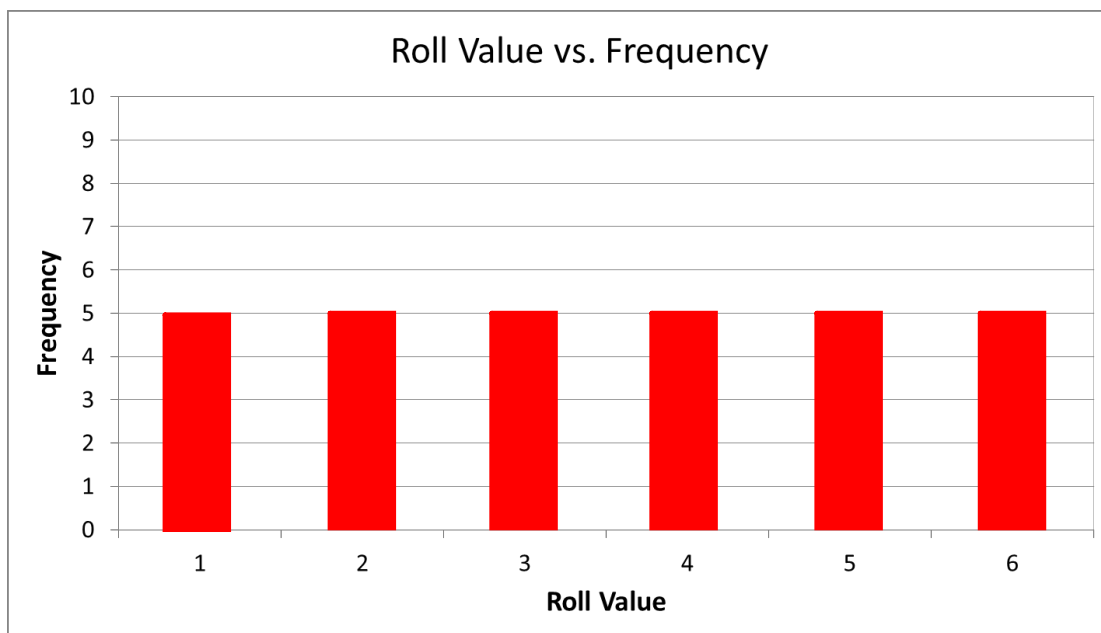
What we expect to happen.
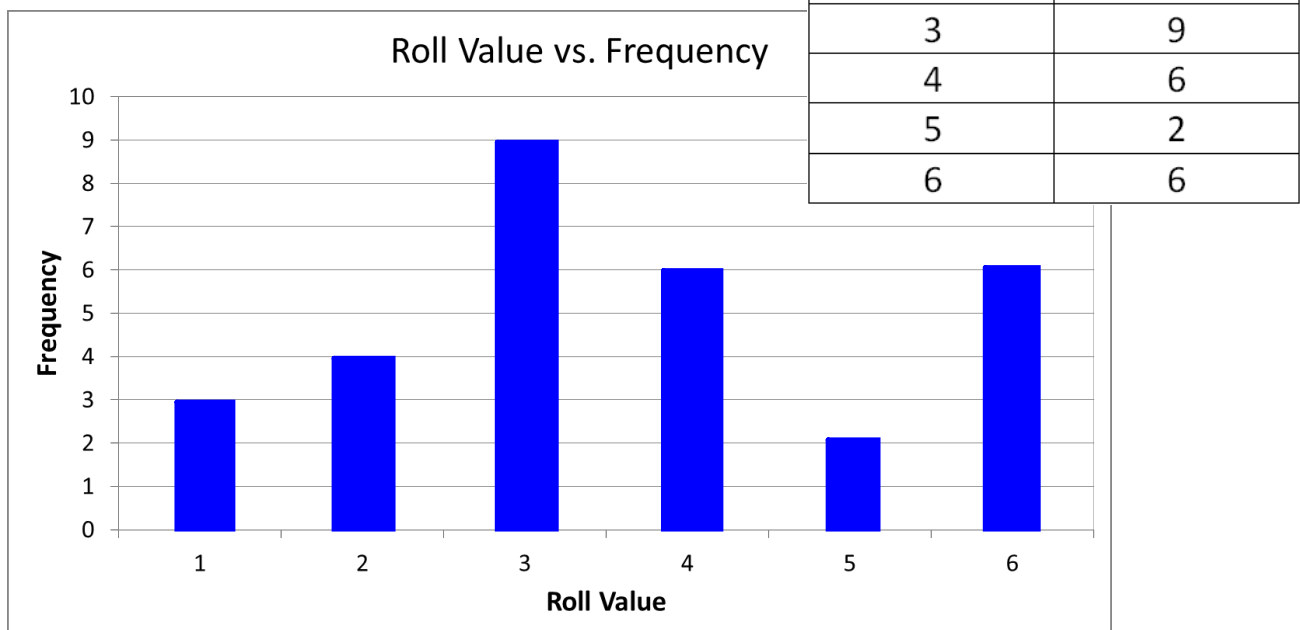
Experimental Probability

What actually happns.

Theoretical Probability

30 Dice Rolls

Experimental Probability

30 Dice Rolls

Number	Frequency
1	3
2	4
3	9
4	6
5	2
6	6

Roll Value vs. Frequency

(Bar chart of Frequency vs. Roll Value: 1→3, 2→4, 3→9, 4→6, 5→2, 6→6)

If I roll a dice 20 times and I roll a six, 4 times....

number of times
I rolled a 6

EXPERIMENTAL
Probability
of rolling a 6

$= \dfrac{4}{20}$ divide

total number of
rolls (TRIALS)

$= 0.2$ $\Big) \times 100$

$= 20\%$

number of times
I rolled a 6

**Probability
of rolling a 6** $= \dfrac{4}{20}$

total number of
rolls (TRIALS)

From here, figuring out the decimal probability
and percentage probability is simple!

Decimal Probability $= 4 \div 20$ JUST DIVIDE THE
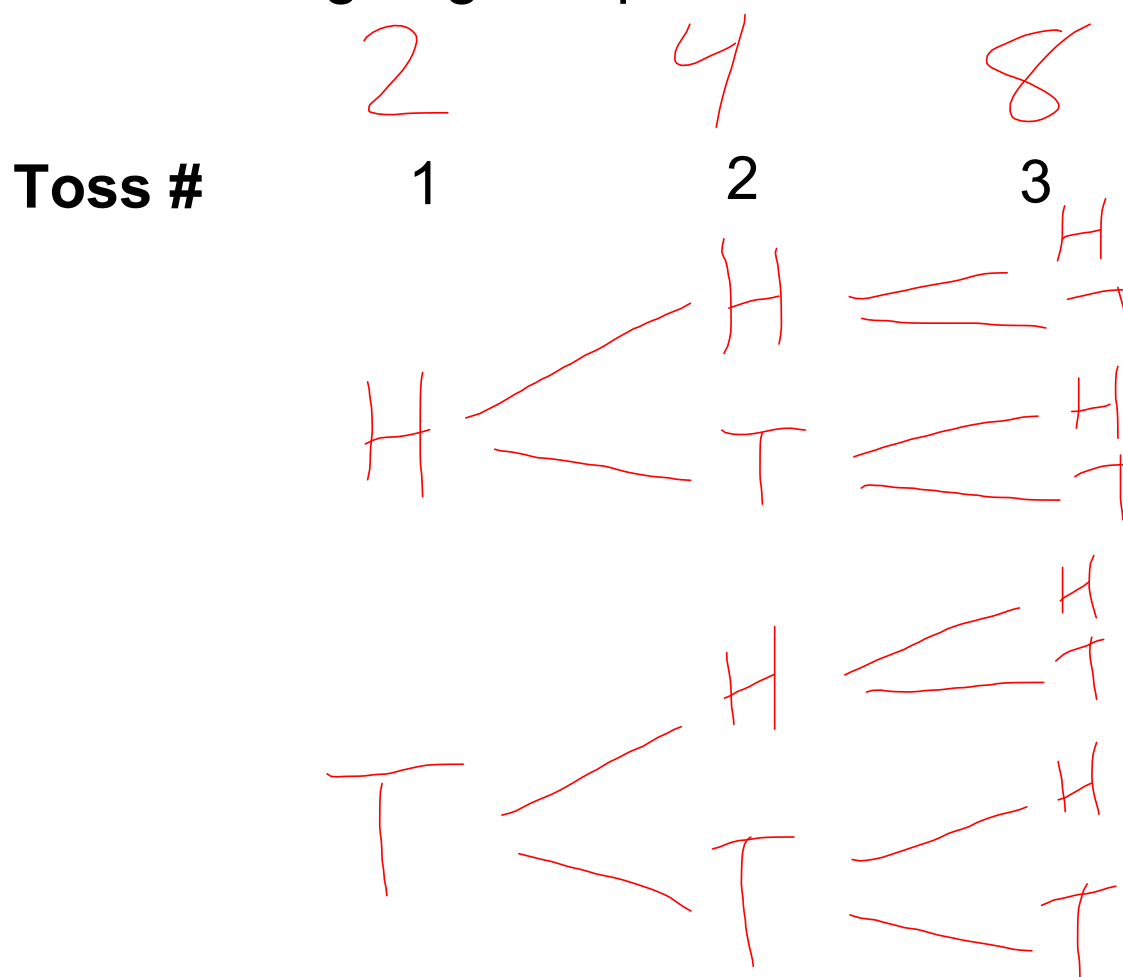FRACTIONAL
PROBABILITY

$= 0.2$

Percentage Probability $= 0.2 \times 100$

JUST MULTIPLY THE
DECIMAL PROBABILITY
BY 100

$= 20\%$

Tree Diagrams

If we were going to flip a coin three times...

2   4   8

Toss #   1   2   3

H
   H — H
         T
   T — H
         T

T
   H — H
         T
   T — H
         T

1 2 3	Outcome	# Heads	# Tails
	HHH	3	0
	HHT	2	1
	HTH	2	1
	HTT	1	2
	THH	2	1
	THT	1	2
	TTH	1	2
	TTT	0	3

Total Outcomes: 8

Cards

A deck has 52 cards.

26 red cards   **26 black cards**

   - 13 hearts   **- 13 spades**
   - 13 diamonds   **- 13 clubs**

Each suit has
   2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q, K, A