

May 4, 2015 ^{1st}
_{2nd}

Get out your homework



5/4 Compound Events

Which lock would you choose since its combo is the hardest one to guess?
Explain.

- 1 This lock has 3 wheels which are numbered from 0 to 9.



- 2 This lock is numbered from 0 to 39. Each combination uses three numbers in a right-left-right pattern.



- 3 This lock has 4 wheels
Wheel 1: 0-9
Wheel 2: A-J
Wheel 3: K-T
Wheel 4: 0-9



Fundamental Counting Principle

An event M has m possible outcomes. An event N has n possible outcomes. The total number of outcomes of event M followed by event N is $m \times n$.

With this new information, look at the locks again. How many outcomes do they each have?

①



10
10
10


10-10-10
= 1000

②



40, 40, 40
= 64,000

③



10-10-10-10
= 10,000

The set of all possible outcomes of one or more events is called the **sample space**.

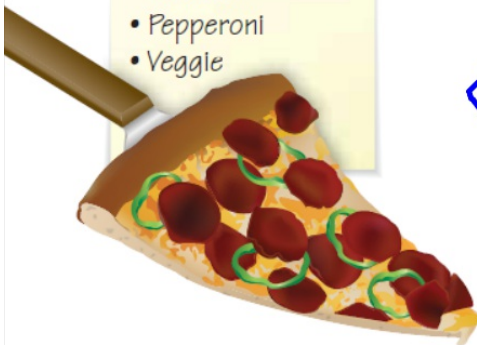
You can use tables and tree diagrams to find the sample space of two or more events.

Crust

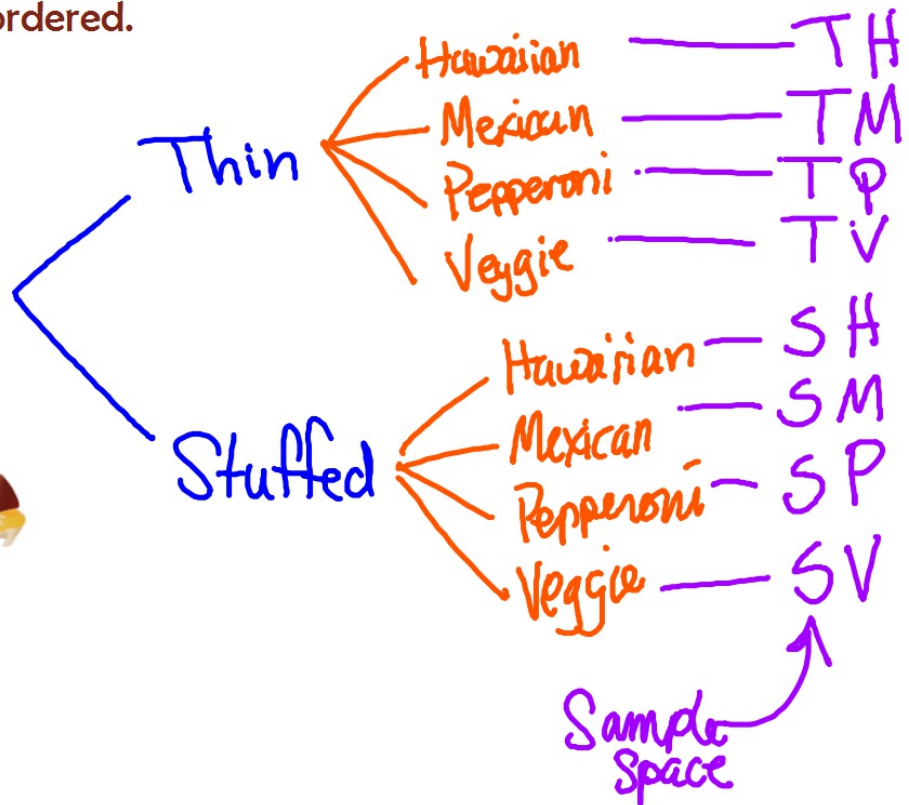
- Thin Crust
- Stuffed Crust

Style

- Hawaiian
- Mexican
- Pepperoni
- Veggie



Use a tree diagram to show the sample space of all of the different types of pizza that could be ordered.





Find the total number of possible outcomes of rolling a number cube and flipping a coin.

Use a chart this time.

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

How many different outfits can you create using the clothes in this situation, if you must wear exactly one from each category?

Pants

- Shorts
- Clown pants
- tights
- PJ
- capris
- Kilt

Shirts

- spidey shirt
- Strapless
- tube top
- crop top
- blouse

shoes

- bling boots
- monkey slompies
- stiletto
- socks/sandals
- moon boots
- light-up sneakers

$$6 \cdot 5 \cdot 6 = 180 \text{ different outfits}$$

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

Use the coin and number cube example to answer the following:

What is the probability of rolling a 2 with heads? $\frac{1}{12}$

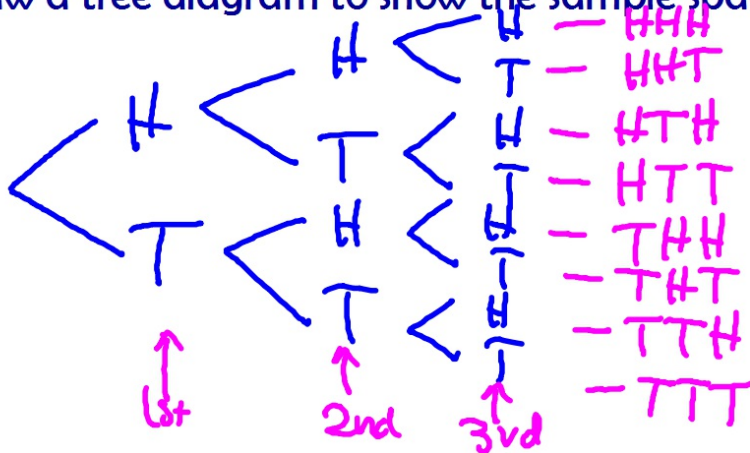
What is the probability of rolling an odd number with tails? $\frac{3}{12} = \frac{1}{4}$

What is the probability of rolling a number higher than 2 with either heads or tails?

$$\frac{8}{12} = \frac{2}{3}$$

Flip 3 coins.

Draw a tree diagram to show the sample space.



Use the sample space to find these probabilities:

$$P(H,H,H) = \frac{1}{8}$$

$$P(\text{T's first followed by H's second}) = \frac{2}{8} = \frac{1}{4}$$

$$P(\text{at least 2 T's}) = \frac{4}{8} = \frac{1}{2}$$

$$P(\text{two H's in a row}) = \frac{3}{8}$$

Homework
Yellow WS 6

Due Wednesday