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

$10 \cdot 10 \cdot 10$
$= 1000$

②

$40 \cdot 40 \cdot 40$
$= 64{,}000$

③

$10 \cdot 10 \cdot 10 \cdot 10$
$= 10{,}000$

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

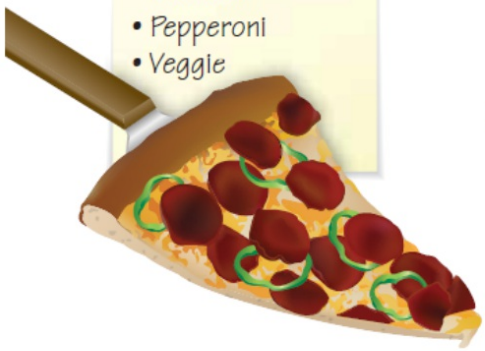
You can use tables and tree diagrams to find the sample space of two or more events.

Crust

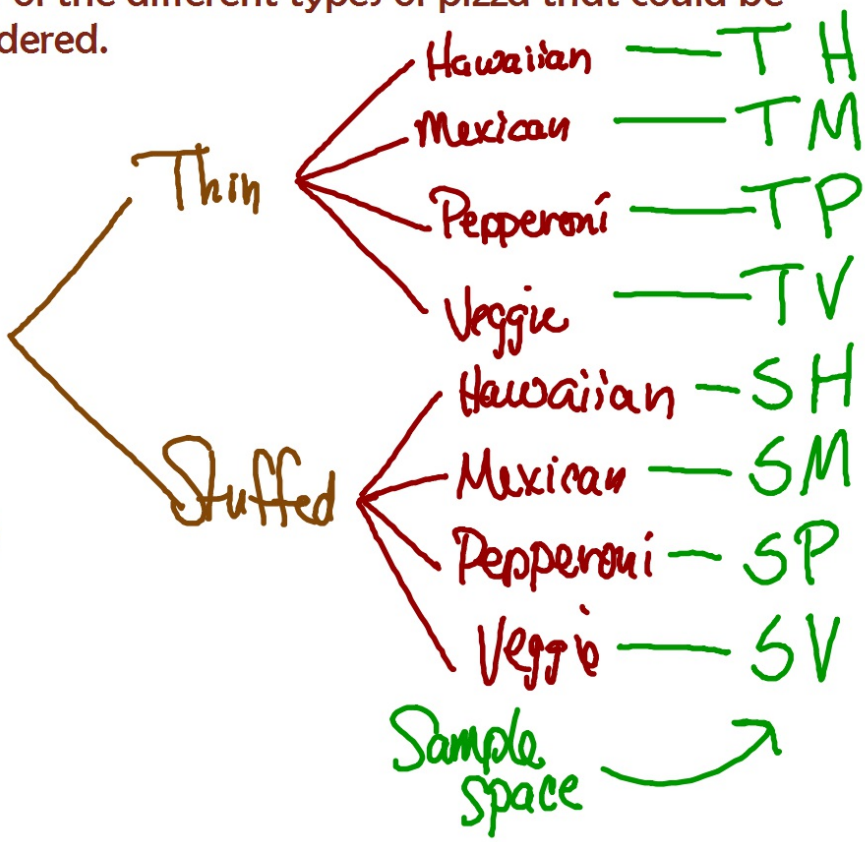
- Thin Crust
- Stuffed Crust

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?

Top	Bottom	Shoes
T-shirt	skirt	high heels
Crop top	skinny jeans	light-up sketchers
Tank Top	hula skirt	socks/sandals
Coconut Bra	Speedo	crocs
Flannel	short shorts	pink knee-hi converse
My Little Pony turtleneck		spray-ons
Lacey Blouse		

7 · 5 · 6 = 210 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? $\frac{1}{12}$

$\frac{1}{6} \cdot \frac{1}{2} = \frac{1}{12}$

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

$\frac{3}{6} \cdot \frac{1}{2} = \frac{1}{4}$

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

$\frac{4}{6} \cdot 1 = \frac{2}{3}$ $\frac{8}{12} = \frac{2}{3}$

Flip 3 coins.

Draw a tree diagram to show the sample space.

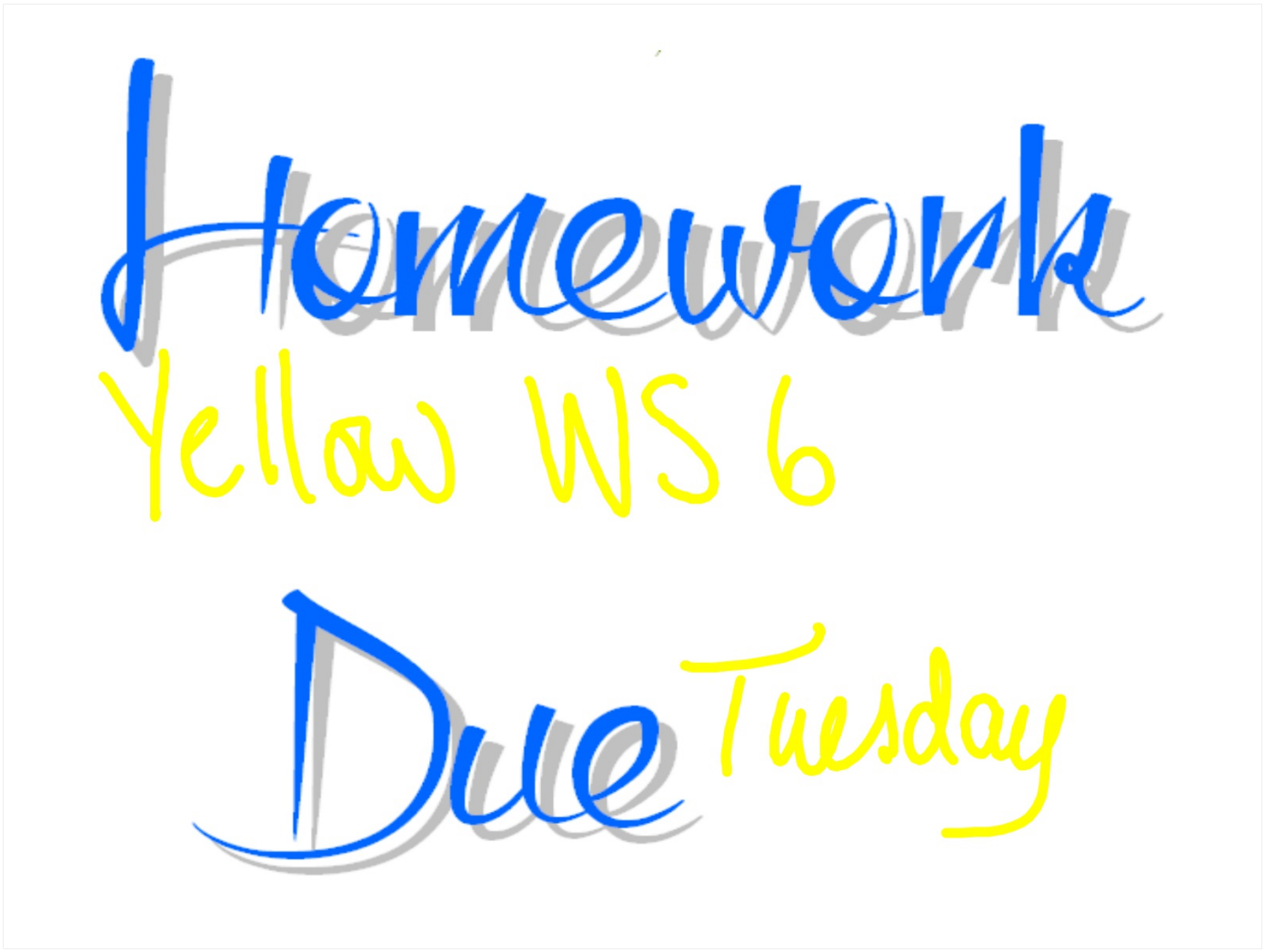
Use the sample space to find these probabilities:

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

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

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

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


Homework
Yellow WS 6
Due Tuesday