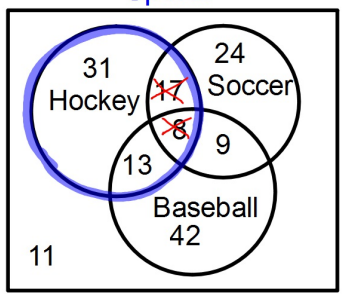
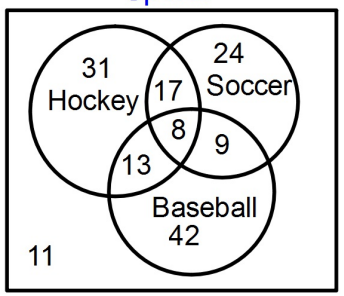
Use the results of a survey shown below to find each probability as a fraction without reducing. TOTAL = 155



1. P(Soccer or Baseball) $= \frac{113}{155}$

2. P(Hockey but not Soccer) $= \frac{44}{155}$

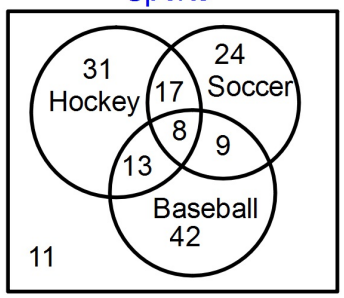
Use the results of a survey shown below to find each probability as a fraction without reducing.



3. P(Neither soccer nor hockey) $= \frac{53}{155}$

4. P(Baseball and Hockey) $= \frac{21}{155}$

Use the results of a survey shown below to find each probability as a fraction without reducing.



5. P(Soccer and Hockey but not baseball) $= \frac{17}{155}$

6. P(Hockey or Soccer or Baseball) $= \frac{144}{155}$

Section 9-7: Probability of Multiple Events

Independent Events:
When the outcome of the first event does NOT affect the outcome of the second event.

$P(A \text{ and } B) = P(A) \bullet P(B)$

Dependent Events:
When the outcome of the first event DOES affect the outcome of the second event.

$P(A \text{ and } B) = P(A) \bullet P(B \text{ after } A)$

Is each pair of event *Dependent* or *Independent* ?

1. Spinning a spinner and pulling a number out of a hat. INDEP
2. You open the refrigerator and randomly grab a drink and finish it. You then reach in and randomly grab another drink and finish that one. DEP
3. Having your i-pod randomly play two songs, one after the other. INDEP
4. You take a can of spray paint from the shelf use it up then take another can and use it up. DEP

You flip a coin then roll a die. Find this probability as a fraction:

P(Flip Heads then roll a 5) = $\frac{1}{2} \cdot \frac{1}{6} = \frac{1}{12}$

This is an example of Independent Events:
When the outcome of the first event does not affect the outcome of the second event.

$P(A \text{ and } B) = P(A) \bullet P(B)$

In a jar are 4 grape suckers and 6 cherry suckers.

1. Find the probability that if you randomly grab a sucker it is Cherry. $\frac{6}{10}$
2. Assuming that you ate the first you took, what is the probability that the second one you take is Grape? $\frac{4}{9}$
3. If you ate the second one too what it the probability that the third one you take is also Grape? $\frac{3}{8}$

2. Assuming that you ate the first one you took, what is the probability that the second one you take is Grape?

3. If you ate the second one too what it the probability that the third one you take is also Grape?

These last two questions are examples of Dependent Events.

When the outcome of the first event DOES affect the outcome of the second event.

P(A and B) = P(A) • P(BafterA)

In the refrigerator there are the following drinks:

5 Cokes, 7 Gatorades, 3 Waters.

You reach in and randomly grab a drink. You look at it, decide that's not what you want so you put it back in and randomly grab another drink.

Find each probability as a fraction:

1. P(Water then a Coke) $= \frac{3}{15} \cdot \frac{5}{15} = \frac{15}{225}$

2. P(Gatorade then a Gatorade) $= \frac{7}{15} \cdot \frac{7}{15} = \frac{49}{225}$

In your sock drawer are 14 white socks, 6 black socks, and 7 blue socks.

You wake up and don't turn on the lights and randomly grab a sock and put it on. You then randomly grab another sock and put it on your other foot.
Find each probability as a fraction.

1. P(Blue then a White) $= \frac{7}{27} \cdot \frac{14}{26} = \frac{98}{702}$

2. P(Black then a Black) $\frac{6}{27} \cdot \frac{5}{26} = \frac{30}{702}$

You still have the following Halloween candy left in a bag:
5 Snickers bars, 3 pieces of gum, and 4 Milky Way bars.

1. You randomly grab one eat it then randomly grab another and eat it. Find this probability as a fraction:

P(Snickers and Milky Way) $= \frac{5}{12} \cdot \frac{4}{11} = \frac{20}{132}$

2. You grab one at random, decide it's not one you want so you throw it back in and grab another. Find this probability as a fraction:

P(Gum and Gum) $\frac{3}{12} \cdot \frac{3}{12} = \frac{9}{144}$