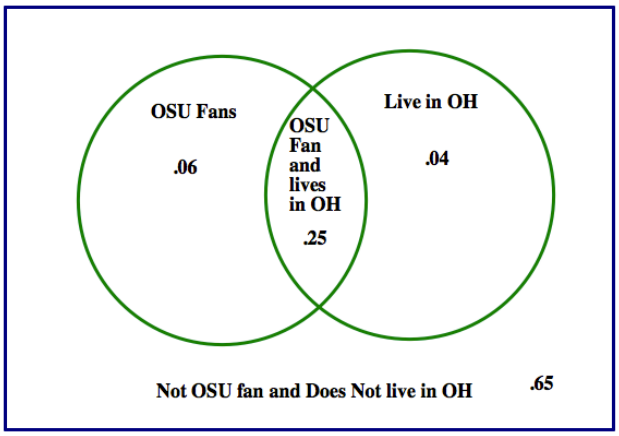
Lesson 35: Venn Diagrams and Probability

Venn Diagrams can be used to solve probability problems involving two or more events.

Given Information

	OSU fan	Not an OSU fan	Total
Live in OH	125,000 .25	20,000 .04	145,000 .29
Does NOT live in OH	30,000 .06	325,000 .65	355,000 .71
Total	155,000 .31	345,000 .69	500,000 1.00

Venn Diagrams



Questions:

P(OH) =

P(OSU) =

P(not OH) =

P(not OSU) =

P(OH and OSU) =

P(OH and not OSU) =

P(OH) among OSU fans =

P(OSU) among OH residents =

Are OH and OSU disjoint?

Are OH and OSU independent?

Daily Data Collection

Think of three traits that a person may have.

Example: brown eyes, female, taller than 5'6"

Create a Venn Diagram and show the probability for each region.

Venn diagrams, two-way tables, and probability

In an apartment complex, 40% of residents read *USA Today*. Only 25% read the *New York Times*. Five percent of residents read both papers. Suppose we select a resident of the apartment complex at random and record which of the two papers the person reads.

PROBLEM:

(a) Make a two-way table that displays the sample space of this chance process.

(b) Construct a Venn diagram to represent the outcomes of this chance process.

(c) Find the probability that the person reads at least one of the two papers.

(d) Find the probability that the person doesn't read either paper.

Suppose

55% of adults drink coffee
25% of adults drink tea
45% of adults drink cola
15% drink both coffee and tea
5% drink all three beverages
25% drink both coffee and cola
5% drink only tea

(a) Draw a Venn diagram marked with the information.

(b) What percent of adults drink only cola?

(c) What percent drink none of these beverages?

HW 35 - Section 5-2: 53-56