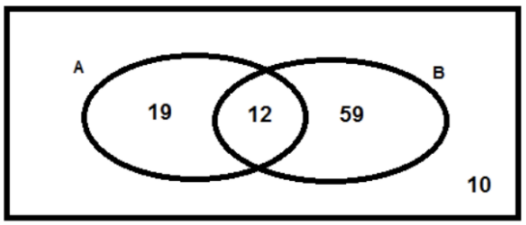
PRACTICE: Now that you have reviewed how to use a Venn Diagram to answer probability questions, let's practice a little more with it.

1. Use the Venn Diagram to answer the following questions.



(a) Sample Space = **10 + 59 + 12 + 19 = 100**

(b) P(A) = **(19+12)/100 = 31/100**

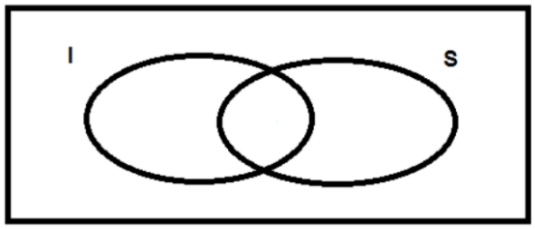
(c) P(B) = **(12 + 59)/100 = 71/100**

(d) P(A ∪ B) = **P(A) + P(B) - P(A and B)**
(31/100) + (71/100) - (12/100)
= 90/100

(e) P(A ∩ B) = **12/100**

2. Complete the Venn Diagram below and use it to answer the following questions.

When you arrive home today, you find 27 cupcakes in a large circular plate. There are 13 that have icing, 11 have sprinkles, and 4 have both.



(a) Sample Space = **27**

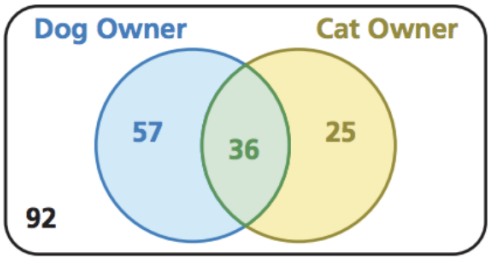
(b) P(I) = **9/27**

(c) P(S) = **7/27**

(d) P(I ∪ S) = **P(I) + P(S) - P(I and S)**
(9/27) + (7/27) - (4/27)
12/27

(e) P(I ∩ S) = **4/27**

3. Use the venn diagram below to answer the questions below. It is optional if you would like to construct a two-way table also.



	Cat Owner	Not Cat Owner	Total
Dog Owner	**36**	**57**	**93**
Not Dog Owner	**25**	**92**	**117**
Total	**61**	**149**	**210**

(a) What is the probability that a randomly selected person does not own either pet? **92/210**

(b) What is the probability that a randomly selected person who owns a dog also owns a cat?

36/93

4. Construct a venn diagram of the sets described below.
[sorry I don't have drawing capabilities, so I am typing the values you would draw below]

(a) Of the positive integers less than 15, set A consists of the factors of 15 and set B consists of all odd numbers.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 → 14
1, 3, 5, 15 → Set A → 4
1, 3, 5, 7, 9, 11, 13 → Set B → 7
Overlap → 1, 3, 5 → 3
2, 4, 6, 8, 10, 12, 14 → 7

(b) Of the positive integers less than 14, set A consists of all prime numbers and set B consists of all even numbers.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 → 13
2, 3, 5, 7, 11, 13 → Set A → 6
2, 4, 6, 8, 10, 12,→ Set B → 6
Overlap → 2 → 1
1, 9 → 2