#  VENN DIAGRAMS

**EXAMPLE 1:**  A survey shows the following results: In a class of 30 students 15 drink coffee, 12 drink tea, and 3 drink both.

1. How many drink only coffee?

1. How many drink only tea?

1. How many drink neither tea nor coffee?

1. What is the probability of a student drinking tea and coffee?

1. What is the probability of drinking tea or coffee?

1. What is the probability of drinking neither tea nor coffee?

**EXAMPLE 2:** In a survey it was found that in Parksville the probability of rain on October 25th was 56% , the probability of rain on October 30th was 60%, and the probability of rain on both days was 40%.

1. What is the probability that it rains only on October 25th?

1. What is the probability that it rains only on October 30th?

1. What is the probability that it rains only on neither day?

**PRACTICE:**

**Population Surveys:**

1. Total people surveyed 100. 25 people do X, 40 people do Y, 15 people do both. Find:[[1]](#endnote-1)
	1. The number of people who do only X
	2. The number of people who do only Y
	3. The number of people who do neither X or Y
	4. The probability of people doing X and Y
	5. The probability of people doing X or Y
	6. The probability of people doing neither X or Y
2. Total people surveyed 60. 15 people do X, 20 people do Y, 10 people do both. Find:[[2]](#endnote-2)

a) The number of people who do only X

* 1. The number of people who do only Y
	2. The number of people who do neither X or Y
	3. The probability of people doing X and Y
	4. The probability of people doing X or Y
	5. The probability of people doing neither X or Y

3. Total people surveyed 75. 35 people do X, 40 people do Y, 20 people do both.[[3]](#endnote-3)

a) The number of people who do only X

1. The number of people who do only Y

 c) The number of people who do neither X or Y

 d) The probability of people doing X and Y

1. The probability of people doing X or Y
2. The probability of people doing neither X or Y

4. In a survey of people 25% do X, 30% do Y, 5% do both. Determine the following probabilities;[[4]](#endnote-4)

* 1. People do only X
	2. People do only Y
	3. People do X or Y

5. In a survey of people 22% do X, 50% do Y, 20% do both. Determine the following probabilities;[[5]](#endnote-5)

* 1. People do only X
	2. People do only Y
	3. People do X or Y

6. In a survey of people 52% do X, 30% do Y, 10% do both. Determine the following probabilities;[[6]](#endnote-6)

* 1. People do only X
	2. People do only Y
	3. People do X or Y
1. a) 10 b) 25 c) 50 d) .15 e) .50 f) .50 [↑](#endnote-ref-1)
2. a) 5 b) 10 c) 35 d) 10/60 e) 25/60 f) 35/60 [↑](#endnote-ref-2)
3. a) 15 b) 20 c) 20 d) 20/75 e) 55/75 f) 20/75 [↑](#endnote-ref-3)
4. a) .20 b) .25 c) .50 [↑](#endnote-ref-4)
5. a) .02 b) .30 c) .52 [↑](#endnote-ref-5)
6. a) .42 b) .20 c) .72 [↑](#endnote-ref-6)