

6. In a given city, 60% of residents read the Morning Paper (event M) and 80% of them read the Evening Paper (event E). If 50% of residents read both Papers,

- What is the probability that a randomly selected resident reads at least one Paper?
- Given a randomly selected resident reads the Morning paper, what is the probability that s/he also reads the Evening Paper?
- Are these events M and E statistically independent? Why?
- If after two years $P(M) = 0.51$ and $P(E) = 0.7$ and $P(M \cap E) = 0.357$; can we conclude that these events are mutually exclusive? Why? Are they independent? Why?

7. A recent study of how 670 Americans get to work revealed the following data:

	Urban	Rural	Total
Automobile	400	200	600
Public Transportation	50	20	70
Total	450	220	670

If a worker is selected at random, what is the probability that the worker:

- Is a rural worker? $220/670 = 32.83\%$
- Uses public transportation? $70/670 = 10.44\%$
- Is a rural worker or uses public transportation? $220 + 50 = 270 / 670 = 40.29\%$
- Is a rural worker, given that he or she uses public transportation?
- Uses public transportation, given that he or she is an urban worker?

8. A manufacturer of window frames knows from long experience that 1 percent of the production will have some type of minor defect that will require a slight adjustment. What is the probability that in a sample of 18 window frames:

- a. 2 will need adjustments?
- b. At most 3 will need adjustment?
- c. More than 5 will need adjustment?

9. Based on past experience, an architect determined a probability distribution of X , the number of times a drawing must be examined by a client before it is accepted.

X	$P(X)$
1	0.1
2	0.2
3	0.3
4	0.2
5	0.2

Compute the mean and standard deviation of X .