MTH 220 – Some Additional Examples From Chapter 2

1. Suppose thirty percent of students favor increased tuition for the purpose of library renovations and forty percent of students favor increased tuition for the purpose of a special on campus building devoted to Greek activities and meetings. Provided that a student favors the tuition hike for the Greek building, the chance he/she will favor a tuition hike for the library funding is twenty percent. What is the chance a student will favor a tuition hike for at least one of the causes? What is the chance a student will favor a tuition hike for the Greek building if they support a tuition hike for the library?

2. A large group of people has responded to a request by a blood bank for blood donations. However, none of their blood types are known to the staff at the bank. Suppose only type A+ is desired and that one in four people actually has this type. If the potential donors are selected in random order, what is the chance that at least three individuals must be typed in order to find A+ blood for the first time? Specifically, what is the chance that the third individual has A+ blood but the first two do not?

3. Thirty percent of a certain company’s washing machines require service while under warranty, whereas only 10% of its dryers require service while under warranty. Discuss why independence is reasonable here. If someone buys a washer and a dryer from this company what is the chance that the washer or dryer will require service during the warranty period?

4. Suppose that when a job candidate comes to interview for a job at XYZ Enterprises that the chance the he or she will want the job after the interview is .68. Also, the chance that XYZ wants the candidate after the interview is .36. Given that the company wants the candidate, the chance that the candidate will want the job is .88. What is the chance that both the candidate will want the job and also the company will want the candidate after the interview? Are the two events of interest in this problem independent?