MAT 1372 Statistics w/ Probability section 4.4 Fall17

1. Read problem and write down strategies to use to solve. Be sure to use vocabulary and concepts that we have introduced. **You must turn before going on to step 2.** (10 min)
2. In groups, solve problem, prepare for presentation. Decide on who will say what. (15 min)
3. Presentation (2 minutes each, 15 min total)

**4.4.4.** The following table lists the 10 countries with the highest production of meat.

**Meat production**

**Country (thousands of metric tons)**

China 20,136

United States 17,564

Russia 12,698

Germany 6,395

France 3,853

Brazil 3,003

Argentina 2,951

Britain 2,440

Italy 2,413

Australia 2,373

Suppose a World Health Organization committee is formed to discuss the long-term ramifications of producing such quantities of meat. Suppose further that it consists of one representative from each of these countries. If the chair of this committee is then randomly chosen, find the probability that this person will be from a country whose production of meat (in thousands of metric tons)

**(a)** Exceeds 10,000

**(b)** Is under 3500

**(c)** Is between 4000 and 6000

**5.** Suppose that distinct integer values are written on each of 3 cards. These cards are then randomly given the designations *A*, *B*, and *C*. The values on cards *A* and *B* are then compared. If the smaller of these values is then compared with the value on card *C*, what is the probability that it is also smaller than the value on card *C*?

**4.4.7.** A total of 44 out of 100 patients at a rehabilitation center are signed up for a special exercise program that consists of a swimming class and a calisthenics class. Each of these 44 patients takes at least one of these classes. Suppose that there are 26 patients in the swimming class and 28 in the calisthenics class. Find the probability that a randomly chosen patient at the center is

**(a)** Not in the exercise program

**(b)** Enrolled in both classes

**4.4.8.** Of the families in a certain community, 20 percent have a cat, 32 percent have a dog, and 12 percent have both a cat and a dog.

**(a)** If a family is chosen at random, what is the probability it has neither a dog nor a cat?

**(b)** If the community consists of 1000 families, how many of them have either a cat or a dog?

**4.4.13.** Suppose 2 people are randomly chosen from a set of 20 people that consists of 10 married couples. What is the probability that the 2 people are married to each other? (*Hint*: After the initial person is chosen, the next one is equally likely to be any of the remaining people.)

**4.4.15.** A real estate agent has a set of 10 keys, one of which will open the front door of a house he is trying to show to a client. If the keys are tried in a completely random order, find the probability that

**(a)** The first key opens the door

**(b)** All 10 keys are tried

**16.** A group of 5 girls and 4 boys is randomly lined up.

**(a)** What is the probability that the person in the second position is a boy?

**(b)** What is the probability that Charles (one of the boys) is in the second position?

**4.4.17.** The following data are from the U.S. National Oceanic and Atmospheric Administration. They give the average number of days in each month with precipitation of 0.01 inch or more for Washington, D.C.

Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

10 9 11 10 11 10 10 9 8 7 8 9

Find the probability you will encounter rain if you are planning to visit Washington, D.C., next

**(a)** January 5 **(b)** August 12 **(c)** April 15 **(d)** May 15 **(e)** October 12