

Homework 1, Section 2.3

Statistics 115A, Fall 2014

Due: Monday, Sept 8, 2014 at 11 am

1. # 2.1 (Wackerly et al) Suppose a family contains two children of different ages, and we are interested in the gender of these children. Let F denote that a child is female and M that the child is male and let a pair such as FM denote that the older child is female and the younger is male. There are four points in the set S of possible observations:

$$S = FF, FM, MF, MM$$

Let A denote the subset of possibilities containing no males; B , the subset containing two males; and C , the subset containing at least one male. List the elements of $A, B, C, A \cap B, A \cup B, A \cap C, A \cup C, B \cap C, B \cup C, C \cap \bar{B}$.

2. # 2.4 from text: If A and B are two sets, draw Venn diagrams to verify the following:
 - (a) $A = (A \cap B) \cup (A \cap \bar{B})$
 - (b) If $B \subset A$ then $A = B \cup (A \cap \bar{B})$
3. # 2.8 from text: From a survey of 60 students attending a university, it was found that 9 were living off campus, 36 were undergraduates, and 3 were undergraduates living off campus. Find the number of these students who were
 - (a) undergraduates, were living off campus, or both
 - (b) undergraduates living on campus
 - (c) graduate students living on campus