General Instructions:

- You can discuss HW problems with others, but your write-up must be your own.
- Homework should be legible, coherent, well-organized and stapled.
- You should submit the first two problems on different sheets than the last two problems.
  Treat the two groups of problems as separate packets: labeled and stapled separately as if they were two different assignments. Remember to put your name on both packets and also to label clearly at the top of each packet which problems are contained therein.
- Read sections 3.1–3.3 of VINING.

Do problems:

1. A small company manufactures two simple components. The marketing department has developed a list of potential customers. They found that 30% of potential customers buy part A only, 40% of potential customers buy part B only, 10% of potential customers buy both parts, and 20% of potential customers buy neither part. Find the probability a random potential customer
   (a) buys part A
   (b) buys at least one of the two parts
   (c) buys exactly one of the two parts
   (d) buys part A given they buy part B
   (e) does not buy part B

2. A company manufactures cardboard boxes, which must meet height and width specifications. The probability a box meets the height specification is .95. The probability a box meets the width specification is .92. The probability the box meets at least one of the two specifications is .98. What is the probability the box meets both the height and width specifications?

3. A department store sells two type of toasters and offers a 3-year warranty on each. 60% of the toasters they sell are brand A and 40% are brand B. 5% of the brand A toasters get returned under warranty and 10% of brand B toasters get returned under warranty. Selecting a returned toaster at random, what is the probability it is brand A?

4. Do exercise #3.6 on p.91 of your textbook.