

## STAT 251 Statistical Inference for Management I Winter 2012

### Quiz 12

Assigned on Thur Feb 2; due on Mon Feb 6. You may work with a group of as many as 4 students, submitting one quiz with all names, provided that you all contribute to the work. You may use your notes.

Suppose that you encounter two traffic lights on your commute to school. Based on past experience, you judge that the probability is .5 that the first light will be red when you get to it, .4 that the second light will be red, and .6 that *at least one* of the lights will be red. [Show your work as you answer #1-3. You may use probability rules or a probability table or Venn diagram.]

- 1) Determine the probability that *both* lights will be red.
- 2) Determine the probability that *exactly* one light will be red.
- 3) Determine the probability that *neither* light will be red.

According to the 2006 *Statistical Abstract of the United States*, 36.1% of American households have a pet dog and 31.6% have a pet cat.

- 4) Does it follow from this information that 67.7% have a pet dog *or* a pet cat?
- 5) Explain/justify your answer to #4.