

**NAME:** \_\_\_\_\_

Quiz 4/5 [20 total points].

Math 111 Sec FC01

*Due at 4:30pm on Thursday, October 16, 2008*

1. Chris and his wife have a cat named Sue, who likes to wake them up in the morning by biting them on the face. Each morning, there is an 80% chance that he will bite Chris's wife on the face. There is a 10% chance that he will bite both of them on the face, and an 85% chance that he will bite at least one of them.
  - (a) What is the probability that Sue will bite Chris on the face in the morning?
  - (b) What is the probability that Sue will bite Chris's wife on the face, but not bite Chris?
  - (c) What is the probability that Chris and his wife will not be bitten on the face at all?
  
2. You have a small Halloween-sized bag containing 30 Skittles: 13 Red, 8 Orange, 2 Yellow, 4 Green, and 3 Purple. You blindly select a handful of five to eat.
  - (a) What is the probability that you choose only red Skittles?
  - (b) What is the probability that your handful contains only yellow and purple Skittles?
  - (c) What is the probability that you "taste the rainbow," *i.e.* your handful has one Skittle of each color?
  
3. You roll a six-sided die 3 times in a row.
  - (a) What is the probability that on both the first and last throws, the die comes up as a one?
  - (b) What is the probability that the die comes up as a one exactly twice?
  - (c) What is the probability that the die comes up as a one at most two times?
  
4. You draw two cards without replacement from a standard deck of 52 playing cards. Let  $E$  be the event that the first card you select is a King; let  $F$  be the event that the second card you select is a King.
  - (a) Draw a tree diagram to represent the possible outcomes using  $E$  and  $F$ .
  - (b) Compute  $P(F|E)$ ,  $P(E)$ ,  $P(F)$ , and  $P(E \cap F)$ .
  - (c) Are the events  $E$  and  $F$  independent?