STAT 2 practice questions:
Probability (ch. 13-15)

Make absolutely sure you understand the standard questions before trying the hard ones. In fact, feel free to skip the hard ones.

My niece has a deck of ten Pokemon cards. Five are Water Pokemon, three are Fire Pokemon and two are Grass Pokemon.

**Question 1:** I shuffle all the cards and draw two cards without replacement. What is the probability that both are Water Pokemon?

**Question 2:** I shuffle all the cards and draw two cards without replacement. What is the probability that at least one is a Water Pokemon?

**Question 3:** I shuffle all the cards and draw five cards with replacement (reshuffling after replacing each card). What is the probability that no more than two are Water Pokemon?

**Question 4 (somewhat difficult):** I shuffle all the cards and draw five cards without replacement. What is the probability that no more than two are Water Pokemon?

My niece and I play randomly take five cards each (drawn without replacement). We then play the cards one at a time, letting the Pokemon battle in the random order in which we drew them. Fire beats Grass, Water beats Fire and Grass beats Water; if two cards of the same type, they draw. We do this for each of our cards, so we have five battles.

**Question 5 (very difficult):** [Note: this question requires you to know what an expected value is (ch. 17).] What is the expected value of the number of draws out we have in these five battles?

**Question 6 (very difficult):** I draw two Water Pokemon and three Fire Pokemon. What is the probability that I lose all five battles?