Solutions to Assignment #1
Long, long ago, and far, far away . . .

The planet Zardoz is populated exclusively by jedi, who always tell the truth, and sith, who always lie. Walking about the planet on a visit, you come across two inhabitants. The one on the left says, "Both of us are jedi," to which the one on the right adds, "That's not true!"

1. What is each inhabitant? Why? *[2]*

SOLUTION. The one on the left must be a sith. If he were truthful about both being jedi, the other would agree.

The one on the right must be a jedi, since if he were a sith, he'd lie about the truth of the other's statement and so would agree with it. ∎

Continuing your walk, you seek the Temple of Indeterminacy. You come to a fork in the road with a tourist information booth staffed by two inhabitants. A sign on the booth tells you that one of the staff is a jedi and the other is a sith, but that you get to ask just one – either one! – of them a single question.

2. What should you ask one of the staffers to find out which fork of the road leads to the Hamlet of Indeterminacy? *[2]*

SOLUTION. One way to get the job done is to pick either staffer and ask "If I were to ask the other staffer which fork leads to the Hamlet of Indeterminacy, what answer would I get?"

If the staffer you asked was the sith, he or she would lie about how a jedi would respond to the question "Which fork leads to the Hamlet of Indeterminacy." Since a jedi would indicate the correct fork, this means that the sith would tell you that the other staffer would indicate the wrong fork.

If the staffer you asked was the jedi, he or she would tell the truth about how a sith would respond to the question "Which fork leads to the Hamlet of Indeterminacy." Since a sith would indicate the wrong fork, this means that the jedi would tell you that the other staffer would indicate the wrong fork.

Either way, you should then pick the other fork to go to the Hamlet. ∎

Suppose that the sign does not tell you that the staffers are a jedi and a sith (so you might have two jedi or two sith instead), but just that you can ask only a single question of just one of them.

3. Can you still find out which way to go by asking a single question? If so, what should you ask? If not, could you find out if you were allowed to ask two questions? (In which case, what are they?) *[3]*

SOLUTION. The basic spirit of the solution to **2** is still useful: you ought to ask a suitable indirect question. Modifying the solution to **2** a little, you can ask "If I were to ask someone who was the other of sith or jedi than you are which fork leads to the Hamlet of Indeterminacy, what answer would I get?" Reasoning essentially identical to that in the solution to **2** will tell you that the answer you will get is wrong, irrespective of whether the staffer you asked the question is a sith or jedi. Again, you should therefore pick the other fork to go the Hamlet. ∎

4. Devise an original problem along these lines. *[3]*

SOLUTION. On your own on this one! ∎