1. A resident of Harrisburg was driving home late one night and noticed several homeless people who appeared to be setting up to sleep outdoors on a very cold night. She called local shelters and discovered that several of them had room for many more clients overnight. She decides that she and her roommate need to try to discover why the homeless people she saw were not taking advantage of the warm beds nearby. This quiz will ask questions about this setting.

   (a) She decides to go out with her roommate and some friends and ask several short, simple questions to any homeless person that they find on the street the next evening/night to find out why they are not planning to sleep indoors. Would the group of homeless people that she talks to be considered a sample or a population? Why?

   (b) If the goal of the study that has been described is simply to get a picture of what reasons the homeless have for not using shelters and some basic demographics about the homeless population of this area, which branch of statistics will they primarily be using? (Explain why in one sentence.)

2. One of the arguments made in favor of the death penalty is that it is an effective deterrent that discourages future criminals from committing the same crimes as the individual who is sentenced to death. For this quiz, suppose that a study is commissioned to study whether this claim is accurate. Since this is a commonly used argument, we will assume that the argument is true for the purpose of the discussion to follow.

   (a) In this setting, what would be the null hypothesis?

   (b) What would be the alternative hypothesis?

   (c) Describe in plain English what a Type I Error would entail here, and what the consequences would be.

   (d) Describe in plain English what a Type II Error would entail here, and the consequences.

   (e) In light of your work here, which choice would you consider to have the more serious risks? Briefly explain your reasoning.