

**Key for Chapter 9 problems 9.26, 9.42, and 9.44.  
Graded out of 30 points.**

**9.26)**

- a) The explanatory variable is whether you had removal of the breast of tumor. The response variable is survival time.
- b) Not an experiment because you are not randomly selecting who gets what treatment. Rather, you are merely collecting pre-existing data.
- c) Many possible confounding variables. Some include:
  - Age of patients
  - What causes patients to choose one treatment over the other?
  - Differing conditions in the different hospitals.

**9.42)**

- a) Answers will vary here. In general, you are looking for something where you will only be collecting data from college students. Some examples include:
  - How many hours do college students study per week?
  - How many hours of sleep do typical college students get?
  - What is the average household income for college students?
- b) Some examples include:
  - Do college students perform better if they spend the night before relaxing or cramming?
  - Do college students better remember facts presented in text books or in lecture?

**9.44)**

- a) An experiment could run as follows: Install daytime running lights in a certain number of vehicles and leave others the same. Track the vehicles and the number of accidents they are involved in over a certain period of time. The response variable could be the number of accidents.
- b) This study could show a drastic improvement that would diminish over time. Perhaps the running lights work well for the first year, but after everyone has grown accustomed to them the effect decreases.

**Common Mistakes**

**1)** On 9.44 many people missed the message of the example cited. In the example, they mention that third brake lights decreased traffic accidents, but only for a limited amount of time after their introduction. Eventually the accident rate climbed back up to pre-third brake light rates. This was due to drivers become accustomed to the third brake light, hence not noticing them as much over time.