

## Section 2.1-2.2

1. A friend who is not taking statistics wonders why it is that anyone would choose to take a sample. "Obviously," she says, "you would get better information from a census." In a short paragraph, explain why statisticians take samples rather than a census.

- Chapter 2, Quiz 1, Form B  
Page 1 of 4

3. The ZZZ chain of motels has a standard method of constructing their buildings to maximize the ease of parking for its customers. The rooms are arranged in adjacent buildings, A and B, so that customers can park close to their rooms. The layout for the 48-room motels is diagrammed below:

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Route 66

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Building A


Building B


The manager wishes to assess customer satisfaction with the motel services. Her plan is to survey one randomly selected customer in 12 of the rooms. The cleaning staff will place surveys on the customers' beds before they check in to the motel. As she tries to decide on an appropriate sampling strategy, the manager realizes the rooms in Building A might be noisier than Building B, and this should be taken into account.

- a) What sampling strategy should she use in this situation? Provide appropriate statistical justification.

- b) Write a short paragraph for the cleaning staff that explains how to carry out your method in part (a). The members of the cleaning staff have not taken statistics.

4. Bias is a potentially serious problem that can arise when taking a sample.
  - a) In a few sentences, explain the concept of bias.

- b) What is the distinction between selection bias and non-response bias?