Algebra II

Bias

 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Hour \_\_\_\_\_\_\_

*When a sampling design is done poorly, the descriptive statistics computed from the data obtained in the sample may not be close to the values that would be obtained if the entire population were surveyed. For example, the Literary Digest predicted that Alfred M. Landon would defeat Franklin D. Roosevelt in the 1936 presidential election. The Literary Digest conducted a poll by mailing questionnaires based on a list of its subscribers, telephone directories, and automobile owners. On the basis of the results, the Literary Digest predicted that Landon would win with 57% of the popular vote. However, Roosevelt won the election with about 62% of the popular vote. The incorrect prediction by the Literary Digest was the result of a poor sample design. In 1936, most subscribers to the magazine, households with telephones, and automobile owners were Republican, the party of Landon. Therefore, the choice of the frame used to conduct the survey led to an incorrect prediction. This is an example of nonsampling error.* (Statistics, Informed Decisions Using Data, Sullivan © 2007)

**Bias:**

A statistical sampling or testing error caused by systematically favoring some outcomes over others. (Dictionary.com)

Systematic favoritism toward one outcome. (The Practice of Statistics, Yates, Moore, Starnes © 2003)

Systematic error introduced into sampling or testing by selecting or encouraging one outcome or answer over others (<http://www.merriam-webster.com/dictionary/bias>)

**Convenience Sampling**

Chooses individuals easiest to reach. (The Practice of Statistics, Yates, Moore, Starnes © 2003)

Members of the population are chosen based on the convenience of including them. (AP Statistics, Preparing for the Advanced Placement Examination, Bohan, © 2006)

**Undercoverage**

Undercoverage occurs when some groups in the population are left out of the process of choosing the sample. (The Practice of Statistics, Yates, Moore, Starnes © 2003)

**Undercoverage**. Undercoverage occurs when some members of the population are inadequately represented in the sample. (http://stattrek.com/AP-Statistics-2/Survey-Sampling-Bias.aspx?Tutorial=AP)

**Nonresponse**

Nonresponse occurs when an individual chosen for a sample can’t be contacted or does not cooperate. (The Practice of Statistics, Yates, Moore, Starnes © 2003)

Nonresponse bias can be viewed as a special type selection bias – it excludes from the sample reluctant and uninterested people. (Excursions in Modern Mathematics, Tannenbaum © 2007)

Nonresponse means that an individual selected for the sample does not respond to the survey. Nonresponse can occur because individuals selected for the sample do not wish to respond or because the interviewer was unable to contact them. (Statistics, Informed Decisions Using Data, Sullivan © 2007)

**Voluntary Response**

Voluntary response sample consists of people who choose themselves by responding to a general appeal. (The Practice of Statistics, Yates, Moore, Starnes © 2003)

Members of the population decide for themselves whether or not to respond. (AP Statistics, Preparing for the Advanced Placement Examination, Bohan, © 2006)

Voluntary response bias occurs when sample members are self-selected volunteers. (http://stattrek.com/AP-Statistics-2/Survey-Sampling-Bias.aspx?Tutorial=AP)

**Wording**

The wording of questions is the most important influence on the answers given to a sample survey. Confusing or leading questions can introduce strong bias, and even minor changes in wording can change the survey’s outcome. (The Practice of Statistics, Yates, Moore, Starnes © 2003)

Wording must be written in a balanced form that is not too vague. Questions should be written such that a response is not affected by prior questions. (Statistics, Informed Decisions Using Data, Sullivan © 2007)

A loaded or leading question is phrased in such a way that suggests to the respondent that the researcher expects a certain answer. (<http://knowledge-based.supersurvey.com/repsonse-bias.htm>)