

## Lesson 8-8

### Example 1 Determine Validity of Conclusions

Determine whether the conclusion is valid. Justify your answer.

To determine what kind of vehicle people are most interested in buying, every eighth person that visits a car dealership is surveyed. The dealership carries all kinds of vehicles. Out of 75 people surveyed, 39 stated that they were most interested in an SUV. The manager concludes that about half of all customers are most interested in an SUV.

The conclusion is valid. Since the population is every eighth customer of a car dealership, the sample is an unbiased random sample.

### Example 2 Determine Validity of Conclusions

Determine whether the conclusion is valid. Justify your answer.

A restaurant provides comment cards to its customers by displaying them on each table. Of the completed comment cards the restaurant received, 95% rated their overall dining experience as excellent. As a result, the manager publishes a newspaper advertisement claiming that 95% of all its customers report an excellent dining experience.

The conclusion is not valid. The population is restricted to only those customers who chose to complete a comment card, so it is a voluntary response sample, and is therefore biased. The results of a voluntary response sample do not necessarily represent the entire population.

### Example 3 Real-World Example

**SCHOOL** Parents and guardians of middle-school students in one particular town were randomly surveyed to determine what time they preferred school to begin each day. The results of the survey are shown in the table. If there are a total of 565 parents and guardians, predict how many prefer school to begin at 8:00 a.m.

Time (a.m.)	Responses
7:30	18
8:00	40
8:30	29
9:00	13

The sample is an unbiased random sample since parents and guardians were randomly selected. Thus, the sample is valid.

$\frac{40}{100}$  or 40% of those surveyed prefer 8:00 a.m. So, find 40% of 565.

$$0.4 \times 565 = 226 \quad 40\% \text{ of } 565 = 0.4 \times 565$$

So, about 226 parents and guardians would prefer school to begin at 8:00 a.m.