

## PS11 WRITTEN SOLUTIONS

\*\*Solutions based on the DOMESTIC version, not the GLOBAL version of the 4th edition textbook.\*\*

### 1. SDM Exercise 18.15 on confidence intervals (p.490)

Question: Several factors are involved in the creation of a confidence interval. Among them are the sample size, the level of confidence, and the margin of error. Which statements are true?

- a) For a given sample size, higher confidence means a smaller margin of error.
- b) For a specified confidence level, larger samples provide smaller margins of error.
- c) For a fixed margin of error, larger samples provide greater confidence.
- d) For a given confidence level, halving the margin of error requires a sample size twice as large.

**Answer:** a) False b) True c) True d) False

### 2. SDM Exercise 18.16 on confidence intervals

Question: Several factors are involved in the creation of a confidence interval. Among them are the sample size, the level of confidence, and the margin of error. Which statements are true?

- 1. For a given sample size, reducing the margin of error will mean lower confidence.
- 2. For a certain confidence level, you can get a smaller margin of error by selecting a bigger sample.
- 3. For a fixed margin of error, smaller samples will mean lower confidence.
- 4. For a given confidence level, a sample 9 times as large will make a margin of error one third as big.

**Answer:** a) True b) True c) True d) True

### 3. SDM Exercise 19.2 on being psychic (p.512)

**Answer:**

- a) Your friend's chance of guessing the correct suit is  $\frac{1}{4}$ .
- b) Your friend's chance of guessing the correct suit is more than  $\frac{1}{4}$ .

### 4. SDM Exercise 19.4 on being psychic

**Answer:**

- a) Your friend's chance of guessing the correct suit is greater than  $\frac{1}{4}$ . (You may not want to jump to the conclusions of psychic powers however.)
- b) There is not enough evidence to conclude that your friend's ability to guess the correct suit is greater than  $\frac{1}{4}$ .

5. SDM Exercise 19.7 on being psychic

**Answer:** One-sided because the only evidence that would support the friend's claim is guessing more than  $\frac{1}{4}$  of the suits correctly.

6. SDM Exercise 19.9 on bad medicine

**Answer:**

- a) The drug may not be approved for use, and people would miss out on a beneficial product.
- b) The drug will go into production and people will suffer the side effect.