Problem 1

Sincich, Ex. 3.49.
(*Note: if you have the 2nd edition of the textbook, then the problem number is Ex. 3.47*)

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Problem 2

Sincich, Ex. 3.53.
(*2nd edition: Ex. 3.51*).

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Problem 3

Sincich, Ex. 3.76: Software defects in NASA spacecraft instrument code.
(*2nd edition: Ex. 3.74*)

To complete part (e), you must download `SWDEFECTS.CSV` from the course webpage. There are two relevant columns for the problem: "defect" (C1) and "predict:loc>50" (C5). To tabulate counts of these variables in Minitab, use the **Stat ⇒ Tables ⇒ Descriptive Statistics** command. Enter in the appropriate row and column variables in the "For rows:" and "For columns:" boxes; leave all other boxes empty.

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Problem 4

Sincich, Ex. 3.87: Purchasing microchips.
(*2nd edition: Ex. 3.93*)

Hint: Let S_1 be the event "the supplier is S_1", and let D be the event "the microchip is defective." What is $P(D \mid S_1)$? What is $P(S_1 \mid D)$?

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Problem 5

A survey of workers in the two plants of a manufacturing firm includes the question "How effective is management in responding to legitimate grievances of workers?" In plant 1, 48 of 192 workers respond "poor"; in plant 2, 80 of 248 workers respond "poor". An employee of the manufacturing firm is to be selected randomly.

Let A be the event "worker comes from plant 1" and let B be the event "response is poor."

(a) Find $P(A)$, $P(B)$, and $P(A \mid B)$.

(b) Are the events A and B independent?

(c) Find $P(B \mid A)$ and $P(B \mid A^c)$. Are they equal?

(d) Show that $P(B^c) \neq P(B^c \mid A^c)$.

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