

Question # 1 (15 marks)

Richvale Fashions Boutique (RFB) conducted a survey to find out the busiest time and day for shoppers. Survey respondents were asked (1) whether they shopped at RFB on a weekday or on the weekend and (2) whether they shopped at RFB before or after 4pm. The survey reported that:

- 48% of respondents shopped at RFB before 4pm
 - 27% of respondents shopped at RFB on a weekday
 - 7% of respondents shopped at RFB before 4pm and on a weekday
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- a) What is the probability that a randomly selected shopper shopped at RFB before 4pm or shopped at RFB on a weekday?
 - b) What is the probability that a randomly selected shopper shopped at RFB before 4pm and shopped at RFB on the weekend?
 - c) What is the probability that a randomly selected shopper shopped at RFB on a weekday and shopped at RFB after 4pm?
 - d) What is the probability that a randomly selected shopper who shopped at RFB before 4pm also shopped at RFB on a weekday?
 - e) Are "weekday" and "before 4pm" independent events? Explain mathematically.
 - f) Are "weekend" and "after 4pm" mutually exclusive events? Explain mathematically

Question # 2 (15 marks)

Brokerage firms like Wood Gundy are always looking at ways to improve the performance of their asset managers, particularly in the first calendar quarter of each year leading up to the RSP deadline at the end of February. One firm has kept records on the number of prospective clients that attend their free seminars on 'Tax planning and RSP's between Jan 16th - Feb 15th. Forty percent of the people who attended a seminar were women. Historically 37% of the women who attend a seminar, sign-up to become clients. Only 21% of men become clients after attending a seminar.

- a) What is the probability that someone attending a seminar will become a client?
- b) If someone attended a seminar and became a client, what is the probability that it was a woman?
- c) If someone attended a seminar but did not become a client, what is the probability that it was a man?