

REVISED Assessment Questions

Pre- and Post Test

QR Pre-Test Assessment

Instructions: The goal of this assessment instrument is to evaluate your ability to use and interpret numbers with application to conditional probability. It will not be graded but you are required to submit the assignment.

The table below shows a sample of the Bronx residents (by gender) surveyed with or without undergraduate degrees. Use this table to answer Questions 1 & 2:

	With undergrad degree	Without undergrad degree
Men	900	600
Women	800	600

Question 1: Which of the following represents a “conditional probability” statement for the information shown on the Table?

- (a) The probability of picking a man in the Bronx is 52%.
- (b) Of the total number of men surveyed in the Bronx, the probability of finding a man with an undergrad degree is 60%.
- (c) Of those surveyed in the Bronx, the probability of picking a woman is 48%.

Question 2: Is it true that “*Most of the Bronx residents with undergraduate degrees are women*”? Write and explain your answer.

Question 3: Suppose the Bronx has 10,000 residents and 10% of these residents are found to be carriers of tuberculosis (TB). Among 65% of these TB carriers, the TB test results were found to be negative. For the non-carriers of TB, the test results were positive for 15%. Based on this information, (a) construct a two-way table; (b) calculate the probability that *a Bronx resident who is found to have positive test result actually is a carrier*, and (c) write and explain how you derive probability value.

Question 4: It was reported in the news that “*The Independent candidate is more likely to win the Mayor election in NYC if there is a higher turnout of younger voters.*” Based on this report, would you feel confident in saying that the chance of the Independent candidate winning the election is positively related to the high turnout of the younger voters? Why or why not?

QR Post-Test Assessment

Instructions: The goal of this assessment instrument is to evaluate your ability to use and interpret numbers with application to conditional probability. It will not be graded but you are required to submit the assignment.

The table below shows a sample of the Lehman College students (by gender) surveyed by STEM and Non-STEM Majors. Use this table to answer Questions 1 & 2:

	STEM Majors	Non-STEM Majors
Men	1000	900
Women	1200	750

Question 1: Which of the following represents a “conditional probability” statement for the information shown on the Table?

- (a) The probability of picking a STEM major is 57%.
- (b) Of the total number of Lehman female students surveyed, the probability of finding a Non-STEM major is 38%.
- © Of those students surveyed at Lehman, the probability of picking a female student is 51%.

Question 2: Is it true that “Most of the Lehman college students in Non-STEM majors are women”? Write and explain your answer.

Question 3: Suppose the NYC has 15,000 residents and 15% of these residents are found to be carriers of HIV-virus. Among 55% of these HIV- carriers, the test results were found to be negative. For the non-carriers of HIV, the test results were positive for 35%. Based on this information, (a) construct a two-way table; (b) calculate the probability that a NYC resident who is found to have negative test result actually is a non-carrier, and (c) write and explain how you derive probability value

Question 4: It was reported in the news that “The probability of a female Presidential candidate winning in the U.S. Presidential election is higher with a larger turnout of female voters.” Based on this report, would you feel confident in saying that the chance of a female candidate winning the election is positively related to the high turnout of the female voters? Why or why not?

Grading rubric

Question 1:

(a)	(b)	©
0 point	1 point	0 point

Question 2:

No	Yes
1 point	0 point

Written explanation:

5 points	3 points	1 point
A full sentence which includes an explanation on looking at the number of women under the column for “with undergrad. degree” and comparing it to the number for “men” under the same column and noting the difference.	Some reference is made in writing about looking at the number for the women under column for “with undergrad degree” without giving explicit explanations	No written explanation given; Incorrect use of table information (e.g. comparing rows for a given column);

Question 3:

(a) Construction of two-way table:

2 points	1 point	0 point
Correctly constructed	Partially correct	No table

(b) Calculation of conditional probability

2 points	1 point	0 point
Correctly calculated	Partially correct	No calculation

(c) Explanation of calculation:

2 points	1 point	0 point
Correct and full explanation of	Partially correct explanation	No explanation is given

how the calculation is conducted; includes reference to the right row and column.	of how the calculation is conducted; includes reference to the right row and column.	
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Question 4:

No	Yes
0 point	1 point

Did the student explain that the independent's win is dependent on having a higher turnout of the younger voters?

No	Yes
0 point	1 point