

QUESTION 1:

Two researchers are interested in examining the relationship between socioeconomic status and whether or not a person supports the current municipal government. The organization is interested in knowing whether or not the two variables are associated (i.e. does level of support vary by level of socioeconomic status)? The results are presented below. Both researchers worked with a simple random sample of Canadians.

Researcher A has produced Table 1 and Researcher B has produced Table 2. The researchers present the results below, which in a sense, appear to be a bit contradictory. They need your advice.

Table 1 (Researcher A):

			Socioeconomic status			
		Low	medium		High	Total
Support for current government						
low		6	4		11	21
medium		6	5		4	15
high		7	6		6	19
Total		19	15		21	55

Table 2 (Researcher B):

			Socioeconomic status				
		Low		medium		High	Total
Support for current government							
low		130		200		90	420
medium		110		195		125	430
high		100		205		145	450
Total		340		600		360	1300

1a. For Researcher A, on the basis of the above, what can you tell me about the nature (strength and direction) of this relationship? Use the appropriate measure of association given the level of measurement involved. Is this relationship significant? **(10 marks)**

1b. Similarly, for Researcher B, what can you tell me about the nature (strength and direction) of this relationship? Is this relationship significant? **(10 marks)**

1c. On the basis of the above, what would you conclude? Are the results consistent? Why or why not? Is there a positive or negative relationship between the two variables? Who is most likely to support the government (persons who have low or high socioeconomic status?) **(5 marks)**

2. A Survey has been administered to random samples drawn from Ontario and Quebec. Respondents were asked if they agree or disagree that “individuals should not have to pay tuition to go to university”.

Ontario						
	18-34	35-54	55+		Total	
"people should not have to pay tuition"						
Strongly disagree	322	175	66		563	
Disagree	631	650	570		1851	
Agree	155	100	80		335	
Strongly Agree	144	66	60		270	
Total	1252	991	776		3019	
Quebec						
	18-34	35-54	55+		Total	
"people should not have to pay tuition"						
Strongly disagree	57	288	147		492	
Disagree	890	982	1062		2934	
Agree	100	72	55		227	
Strongly Agree	120	50	50		220	
Total	1167	1392	1314		3873	

2a. Compute a measure of association for each table. What is the strength and direction of the association in each province **(10 marks)**

2b. Is there a significant relationship between the two variables in each province? **(10 marks)**

2c. Which age group is most supportive of “no tuition”? **(2 marks)**

2d. How does the relationship differ in the two provinces? **(3 marks)**

3. The variables below were collected for a random sample of 10 electoral districts. In our research we select “% who smoke” as our dependent variable.

District	% smoke	% working class	Unemployment rate
A	22	51	10
B	20	44	13
C	26	57	7
D	32	77	16
E	8	14	3
F	40	88	20
G	38	66	18
H	20	43	8
I	6	36	0
J	15	44	8

3a. Draw a scattergram between “% working class” and “% who smoke”. Do the same with “Unemployment rate” and “% smoke” **(5 marks)**

3b. Calculate the regression line ($Y=a+bX$) for each of the two relationships portrayed in the two scattergrams. **(10 marks)**

3c. Compute r for each relationship and determine which of the two relationships is stronger **(10 marks)**.

3d. Are the measures of association statistically significant? **(10 marks)**

3e. On the basis of your regression, what “% smoking” would you predict for a district with 22% working class? What “% smoking” would you predict for a district with a 30% unemployment rate? **(5 marks)**.