Responses Overview

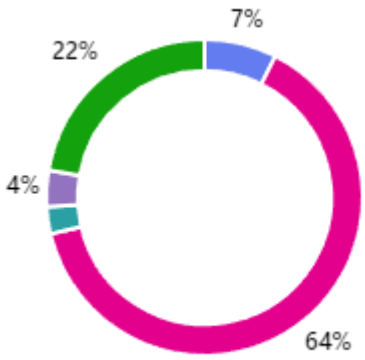
Active

Responses	Average Score	Average Time
108	23.8	33:04

1. Which pairs of variables are independent in the graphical model here, given that none of them a re observed?
(3 points)

64% of respondents answered this question correctly.

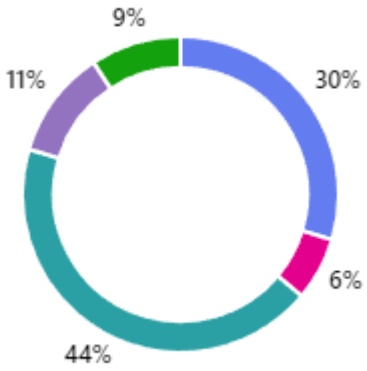
A, E	8
A, B	69 ✓
D, E	3
A, C	4
None - no pairs of independent variables	24



2. Assume E is observed but A, B, C, and D are not observed. Which pairs of variables (not including E) are independent in the model, given E? (2 points)

44% of respondents answered this question correctly.

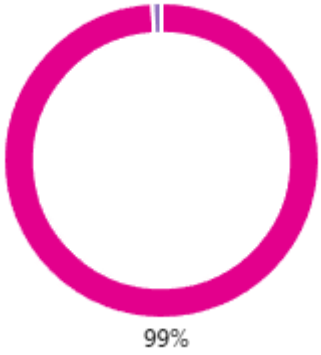
A, B	32
A, C	7
None - no independent variables given E	47 ✓
A, D	12
D, C	10



3. Let I(G) be the set of independencies encoded by a graph G. Consider this definition: Then G_1 is an I-map for G_2 if I(G_1) is a subset of I(G_2). Which of the following statements about I-maps a re true? (2 points)

99% of respondents answered this question correctly.

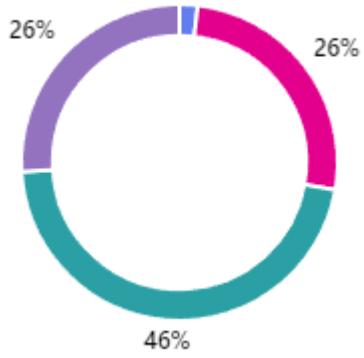
The graph K that is the same as graph G, except that all edges are oriented in the opposite direction as...	0
A graph K is an I-map for graph G if and only if all of the independencies encoded by K are also encoded...	107 ✓
A graph K is an I-map for graph G if and only if the graphs have the same nodes and edges	0
An I-map maps a graph G to itself	1



4. How many independent parameters are required to uniquely specify the conditional distribution of C given it's parents in the model here, if A, B, D are binary, and C, E have 3 values each? (3 points)

46% of respondents answered this question correctly.

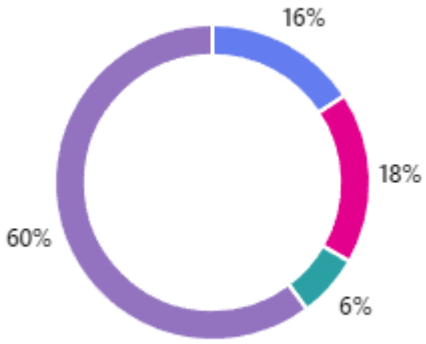
6	2
12	28
8	50 ✓
11	28



5. In this undirected model, which pairs of variables are independent when no variables are observed? (3 points)

60% of respondents answered this question correctly.

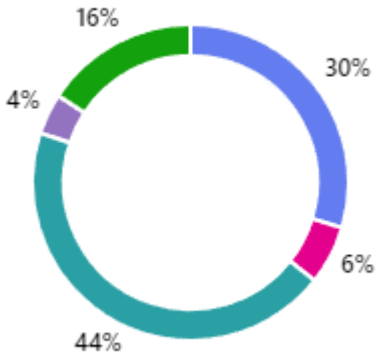
A, D	17
B, E	19
A, B	7
No pairs are independent	65 ✓



6. (3 points)

52% of respondents answered this question correctly.

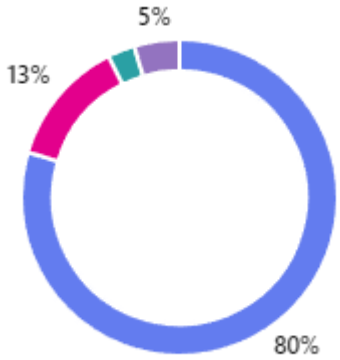
Always greater than or equal to pi_1[a,b]*pi_2[b,c]*pi_3[a,c], where a, b, c, are...	64 ✓
Equal to 1	13
Equals partition function Z	96 ✓
Always less than or equal to pi_1[a,b]*pi_2[b,c]*pi_3[a,c], where a, b, c, are...	9
Always greater than or equal to 1	34



7. The moral graph corresponding to the given graph (2 points)

80% of respondents answered this question correctly.

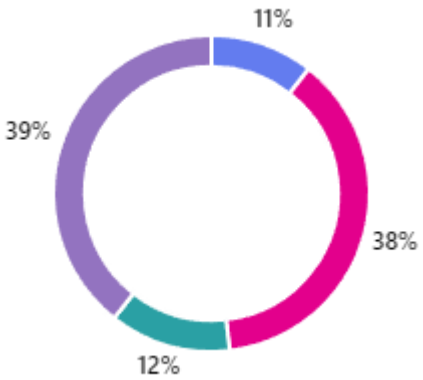
Has new edges between x_1 and x_2, x_2 and x_3, & x_1 and x_3	86 ✓
Has new edges between x_1 and x_2 & x_2 and x_3 only	14
Is the same as the given graph	3
Has new edges between x_2 and x_3 & x_1 and x_3 only	5



8. The conditional independence properties exhibited by the given graph are (Choose all correct options): (2 points)

56% of respondents answered this question correctly.

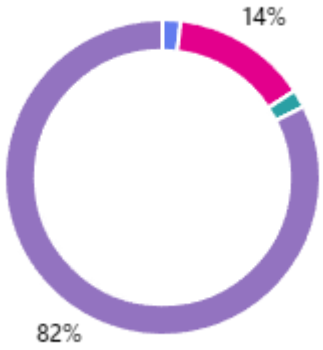
A and B are unconditionally independent	23
A and B are not unconditionally independent	82 ✓
C and D are independent when A is observed but B is not observed	27
C and D are independent when A and B are observed	86 ✓



9. Consider the model for traffic jam in a town which can be caused either by a car accident or a vis it by the president and find the value of P(Accident=1 | Traffic=1, President=1) rounded to two d ecimal places. (10 points)

82% of respondents answered this question correctly.

0.23	2
0.54	15
0.76	2
0.14	89 ✓



10. Read carefully and answer: (5 points)

66% of respondents answered this question correctly.

A is independent of E given B	100 ✓
C is independent of E given B	23
B is independent of E given C	78 ✓
C is independent of D given A	13