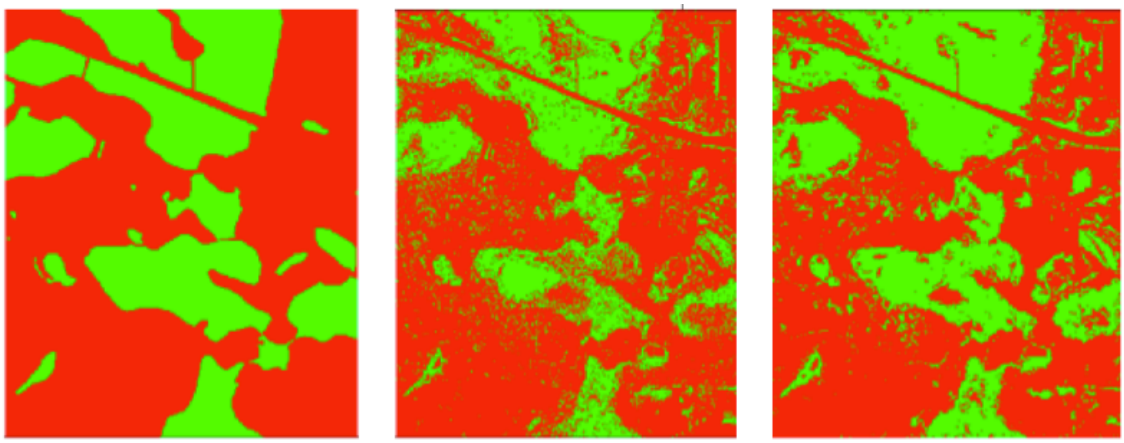
Feedback — Module 4 Technical problem set

Help

You submitted this quiz on **Thu 16 Oct 2014 6:30 PM PDT**. You got a score of **5.00** out of **11.00**.

Question 1

Which of the following three figures exhibits highest spatial autocorrelation?



a b c

Your Answer		Score	Explanation
(•) Figure a	✔	1.00	
( ) Figure b			
( ) Figure c			
Total		1.00 / 1.00	

Question 2

Which violate the identical distribution assumption underlying traditional methods?

Your Answer		Score	Explanation
Cancer cell heterogeneity makes treatment of cancer difficult.			
No two places on the Earth are exactly alike.			
All politics is local.			
All of the above	✔	1.00	
Total		1.00 / 1.00	

Question 3

Which pair has an empty intersection, when country A (e.g., Vatican City) is completely surrounded by country B (e.g., Italy)?

Your Answer		Score	Explanation
Boundary(B), Boundary(A)			
Exterior(B), Boundary(A)			
Exterior(B), Exterior(A)	✖	0.00	
Boundary(B), Exterior(A)			
Total		0.00 / 1.00	

Question 4

Which adjacency matrix represents the touch (i.e., neighbor) relationship among Latvia (La),

Lithuania (Li), Belarus (B) and Poland (P) in the following map?

a

	La	Li	B	P
La	0	1	0	0
Li	1	0	0	1
B	1	1	0	1
P	0	1	1	0

b

	La	Li	B	P
La	0	1	1	0
Li	1	0	1	1
B	1	1	0	1
P	0	1	1	0

c

	La	Li	B	P
La	0	1	0	0
Li	1	0	1	1
B	0	1	0	1
P	0	1	1	0

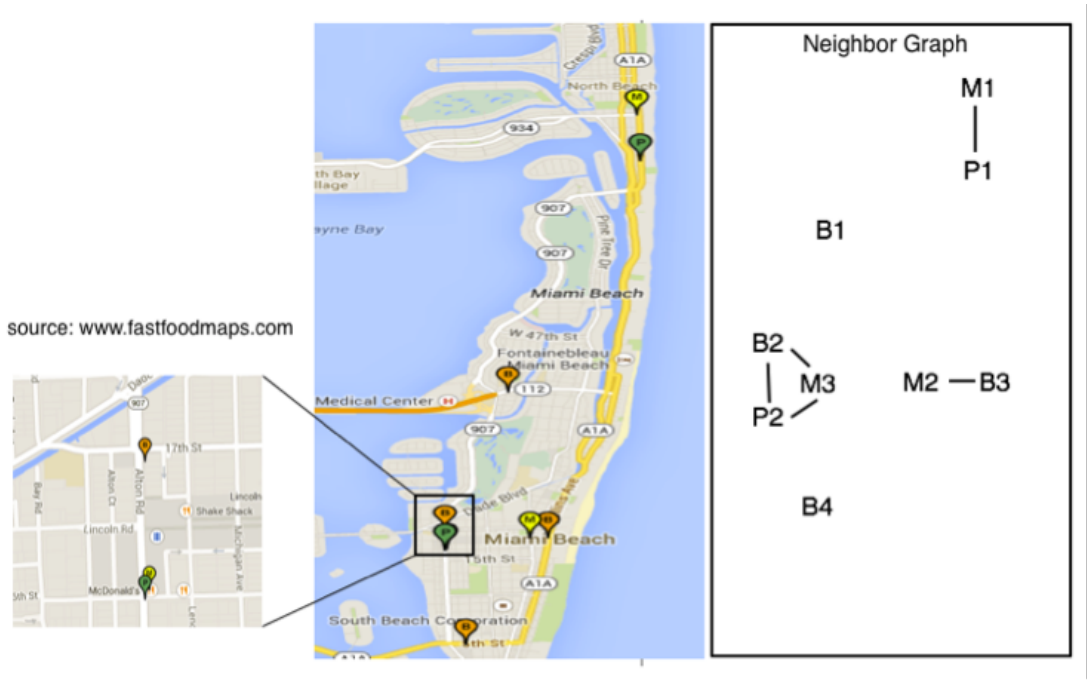
d

	La	Li	B	P
La	0	1	1	1
Li	1	0	1	1
B	0	1	0	1
P	0	1	1	0

Your Answer		Score	Explanation
a			
b	✔	1.00	
c			
d			
Total		1.00 / 1.00	

Question 5

Consider following map (left half) and neighbor graph (right half) of fast-food restaurants by Burger King (B), McDonald's (**M**), and Pizza Hut (P).

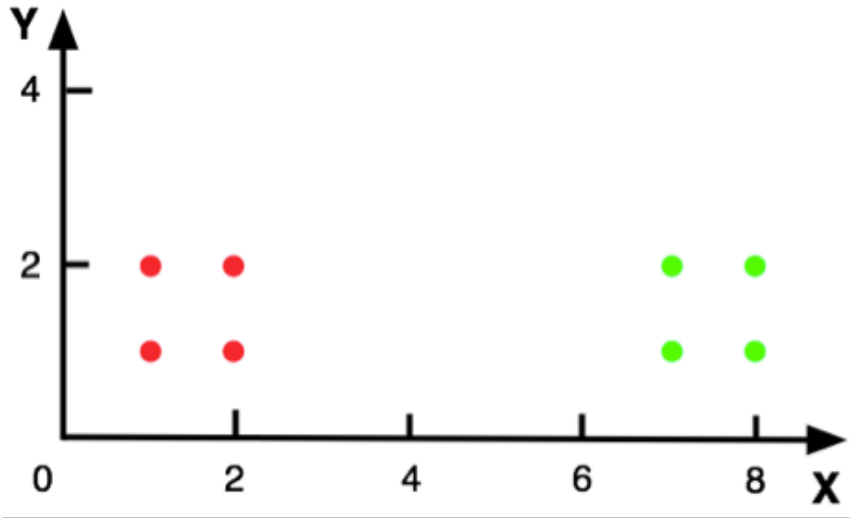


Which pair has the highest participation index (an interest measure for colocation)?

Your Answer		Score	Explanation
(Burger King, McDonald's)	✖	0.00	
(Burger King, Pizza Hut)			
(Pizza Hut, McDonald's)			
Total		0.00 / 1.00	

Question 6

Consider a dataset with following points in 2-dimensional space: (1,1), (2,1), (1,2), (2,2), (7,1), (8,1), (7,2), and (8,2).

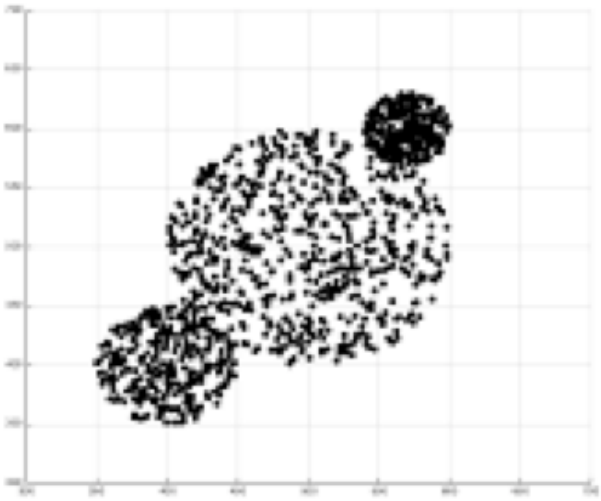


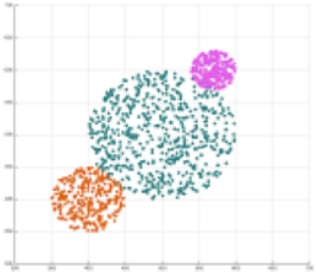
Which initial seeds will help k-means (with k=2) converge to clusters with centers of (1.5,1.5) and (7.5, 1.5) separating red and green points?

Your Answer		Score	Explanation
(5, 0) and (5, 3)			
(1.5, 1) and (8.5, 2)			
(3, 0) and (100, 100)			
(5, 0.5) and (5, 2.5)	✖	0.00	
Total		0.00 / 1.00	

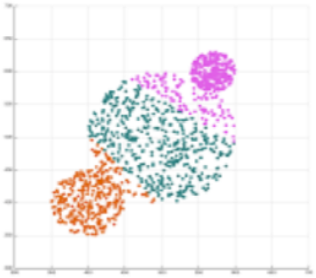
Question 7

Which figure represents output of k-means clustering (with k=3) for the points in the figure below? Assume each distinct cluster in k-means output has a unique color.

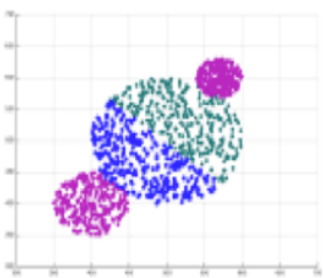




a



b

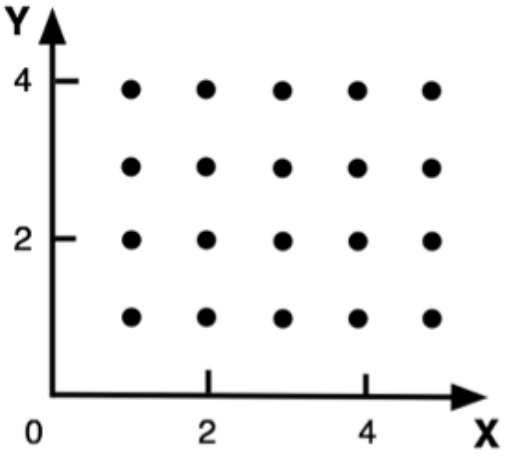


c

Your Answer		Score	Explanation
a	✖	0.00	
b			
c			
Total		0.00 / 1.00	

Question 8

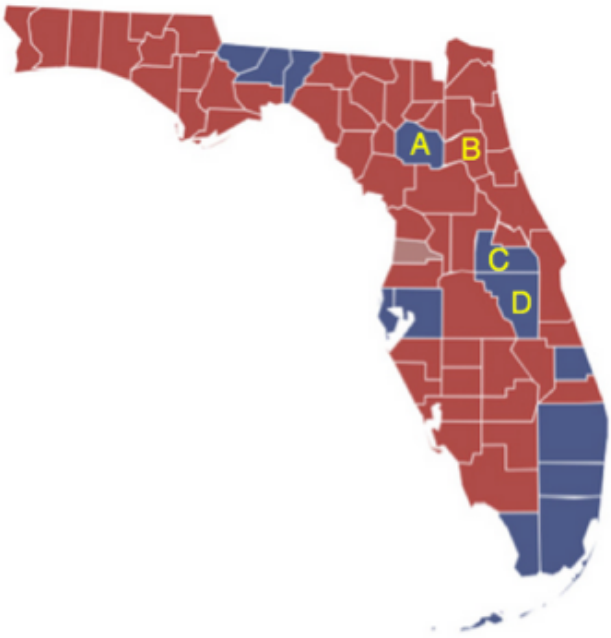
Which statement is false given a set of data-points representing a 2-dimensional grid?



Your Answer		Score	Explanation
SatScan may output a high likelihood-ratio circle, but it will fail the statistical-significance test.	✖	0.00	
K-means with k = 2 will find 2 clusters.			
SatScan will find a significant hotspot.			
K-means with k = 3 will find 3 clusters.			
Total		0.00 / 1.00	

Question 9

The following figure shows the 2012 United States president election results (blue vs. red) for Florida counties, e.g., A, B, C, D, etc.

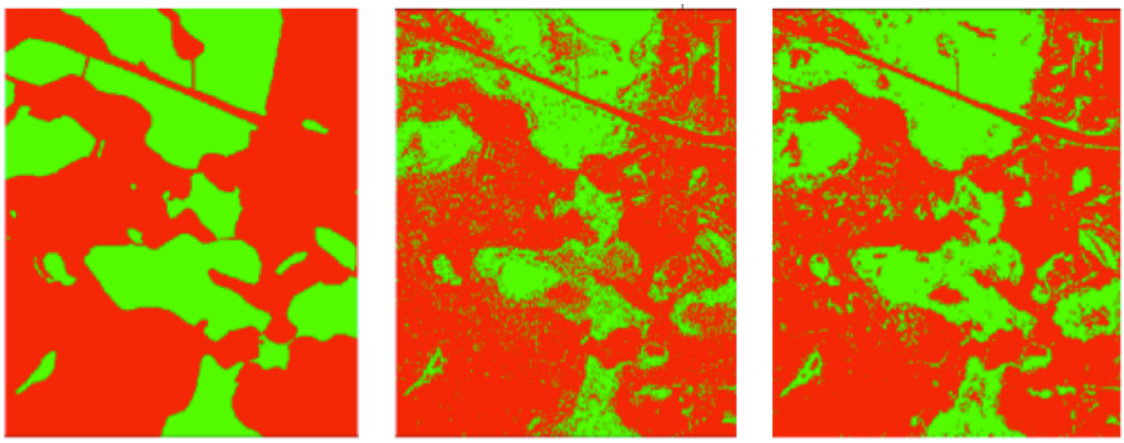


Which county is a spatial outlier in the above map?

Your Answer		Score	Explanation
County A	✔	1.00	
County B			
County C			
County D			
Total		1.00 / 1.00	

Question 10

Assuming map B represents ground truth, which map is more likely a results from traditional model with independent identical distribution (i.i.d.) assumption?

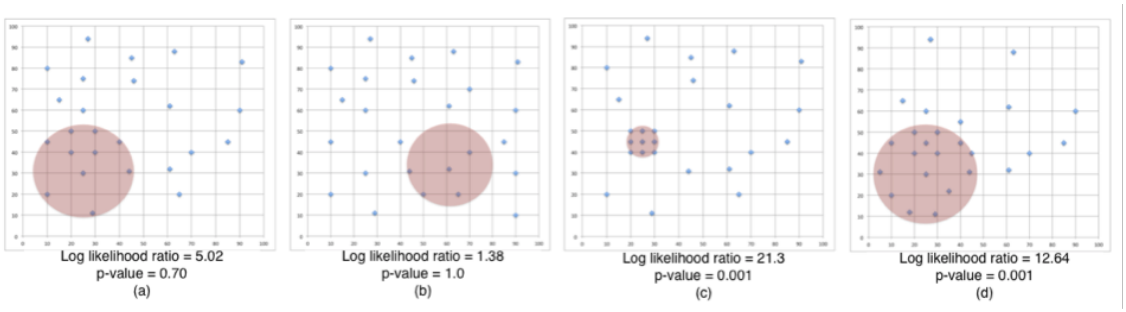


a b c

Your Answer		Score	Explanation
Figure a			
Figure b	✖	0.00	
Figure c			
Total		0.00 / 1.00	

Question 11

Consider following four datasets, each with a candidate circles with its log likelihood ratio and p-value.



Which figures best illustrate statistically-significant hotspots?

Your Answer		Score	Explanation
Figure d and Figure a			
Figure a and Figure b			
Figure c and Figure d	✔	1.00	
Figure b and Figure c			
Total		1.00 / 1.00	