

Math 1015: Exam #3 review

Question 13. In each part, divide the population into 4 districts of 7 voters each. Each time I'll give you 3 pictures to draw on in case you mess it up. You should only need to use one of them.

- a) Make the outcome 3 circle districts, 1 star.



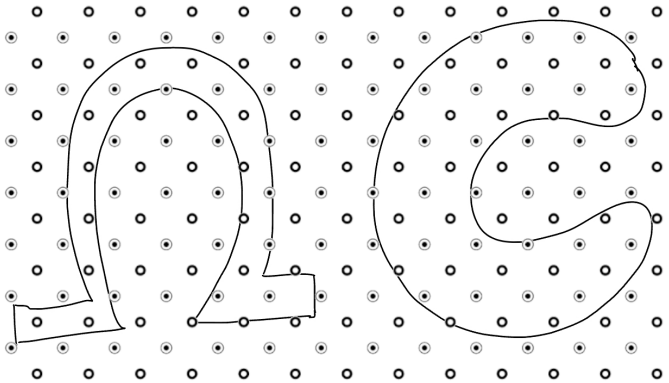
- b) Make the outcome 2 circle districts, 2 star.



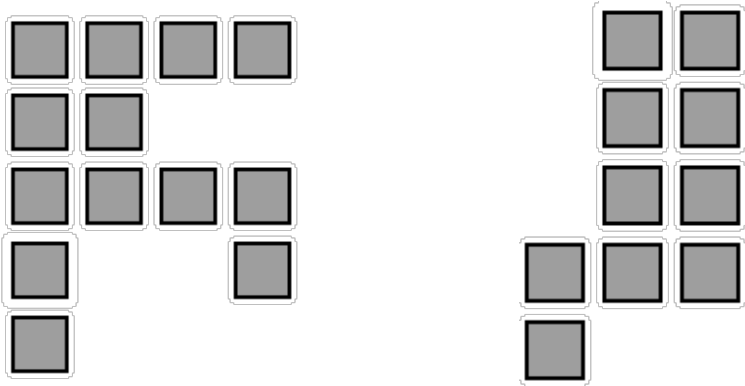
Question 14. Please find the efficiency gap for these votes between the D's and the R's. You answer should say, "The EG is ??? in favor of ???" You can write your answer as an unsimplified fraction.

district	D votes	R votes
1	3	6
2	7	4
3	5	6
4	2	10

Question 15. Please find the convex hull ratio of each shape. You can leave your answer as an unsimplified fraction.



Question 16. Please find the isoperimetric quotient of each shape. You can leave your answer as an unsimplified fraction.



Question 17. Three people A, B, C are dividing this cake. Please show how they would make a fair division using the Lone Divider method, where A is the divider.

Assume that: A likes only the dotted part, B likes only the gray part, and C likes the gray and dotted parts equally but not the white.

You may not need to use all these pictures. Write a few words of narration so that I can tell what you're doing, and make it clear what your final division is.

