

Homework Assignment No. 6

Show all of your work on scratch paper, label your answers, and you MAY use a calculator.

Problem A mathematics department has 30 teaching assistants (TAs) to cover recitation sections for College Algebra, Calculus I, Calculus II, Calculus III, and Contemporary Mathematics. The enrollments of these courses are given in the below table. The department will use the Hamilton method to apportion the TAs to the five subjects. In this problem, the house size is 30 (the number of TAs) and the population is the number of students, 750. The states are the five courses to be offered.

Course	Enrollment	Quota	Lower Quota	Apportionment
College Algebra	188			
Calculus I	142			
Calculus II	138			
Calculus III	64			
Contemp. Math	218			
Totals	750	30		30

- a** First find the standard divisor.

- b** Use the standard divisor to calculate the quotas for each class.

- c** Apply the floor function to the quotas to obtain the lower quotas.

- d** Use the Hamilton method to figure out which classes get their upper quota (i.e. their lower quota plus one) and then fill out the apportionment column appropriately.

- e** Now suppose that the math department is going to add an additional TA, making the total number of TAs 31. Rework the exercise to find the new apportionment.

- f** Did you observe the Alabama paradox in this example? Why or why not?