

Worksheet 3
A&S100
20 September 2002

Name: _____

1. In 1880, C.W. Seaton noted that Hamilton's method does not satisfy what your text refers to as the House Size Property. The following example illustrates the problem.

The attached chart contains population data for the states in 1880. It also contains the quotas for a 299-seat and a 300-seat house. The data was taken from <http://fisher.lib.virginia.edu/cgi-local/censusbin/census/cen.pl> and <http://www.ctl.ua.edu/math103/apportionment/illALPa.htm>

- (a) Use Hamilton's method to apportion the seats if the house size is 299 seats.
 - (b) Use Hamilton's method to apportion the seats if the house size is 300 seats.
 - (c) What problem do you observe as the house size increases from 299 seats to 300 seats?
2. Population data for five states is given in the chart below.

State	Populations
A	83
B	60
C	745
D	431
E	952

Use

- (a) Lowndes' Method
 - (b) Hamilton's Method
 - (c) Jefferson's Method
 - (d) Webster's Method
- to apportion the seats of a 25-seat house for these five states. Do any of these apportionment methods appear to favor large states? small states?
3. The apportionment method proposed by John Quincy Adams is similar to Jefferson's Method of Apportionment. To apply Adams' Method of Apportionment, you must find a divisor so that rounding the modified quotas **up** to the nearest whole number allots the correct number of seats. Use Adams' method to apportion the 25-seat house from the previous problem.