APPORTIONMENT

Step 1: Calculate the standard divisor.

$$standard\ divisor = \frac{total\ population\ of\ all\ groups}{number\ of\ items\ to\ be\ apportioned}$$

Step 2: Calculate each standard quota.

$$standard\ quota = \frac{population\ of\ a\ group}{standard\ divisor}$$

Method 1: Hamilton's (NO ROUNDING)

whole ← → decimal

"**CHOP**" the **standard quota** into the whole number part and the decimal part. Note how zeros are added to the decimal part so that all have the same number of decimal places.

standard quota	whole	decimal
17.9	17	.900
10.57	10	.570
8.04	8	.040
4.352	4	.352
0.725	0	.725

Use the whole number part first to allocate resources. If there are surplus resources, allocate the rest, one at a time, beginning with the largest decimal part.

Flaws in Apportionment Methods

The Alabama Paradox - Increasing the total number of items to be apportioned results in the loss of an item for a group.

The New States Paradox - The addition of a new group changes the apportionment of other groups.

The Population Paradox - Group A loses an item to Group B even though population of A grew at a faster rate than B.

$$percent\ of\ increase = \frac{amount\ of\ the\ increase}{original\ amount} \times 100\%$$

APPORTIONMENT
by rounding

Start with the standard quota and round like this:

Method 2: Jefferson's

(round down)

Method 3: Adams'

(round up)

Method 4: Webster's

(round normally)

standard quota	Jefferson	Adams	Webster
17.9	17	18	18
10.57	10	11	11
8.04	8	9	8
4.352	4	5	4
0.725	0	1	1

Distribute the items using the rounded values.

Too many items? Make the divisor bigger.
Too few items? Make the divisor smaller.

Recalculate the quotas.

Try distributing the items again.

Modify the divisor until the rounded quotas work out so that there are exactly the right numbers of items.