

KEY
Fall 2017

Worksheet -- Apportionment Review

1. A university is composed of five schools. The enrollment in each school is given by the table below. There are 300 new computers to be apportioned among the five high schools according to their respective enrollments. Use Hamilton's Method to find each school's apportionment of computers.

$SD = 36.2$

$SD = \frac{10860}{300}$

School	Enrollment	SQ	LQ	Hamilton
Liberal Arts	1180	32.597	32	32
Education	1290	35.635	35	36
Business	2140	59.116	59	59
Engineering	2930	80.939	80	81
Sciences	3320	91.713	91	92
TOTAL	10860	300	297	300

2. An HMO has 70 doctors to be apportioned among six clinics. The HMO decides to apportion the doctors based on the average weekly patient load for each clinic, given in the table below. Use Jefferson's Method to apportion the 70 doctors.

$SD = \frac{2914}{70} \approx 41.629$

Clinic	Avg Weekly Patient Load	SQ	LQ	Jefferson (MD = 39.8)
A	316	7.5909	7	7
B	598	14.365	14	15
C	396	9.5127	9	9
D	692	16.622	16	17
E	426	10.233	10	10
F	486	11.675	11	12
TOTAL	2914	70	67	70

3. City College is made up of five departments. A total of 110 teaching positions are to be apportioned based on the school's enrollment as shown below. Find the number of faculty members appointed to each department using the Webster and Huntington-Hill Methods.

Department	enrollment	SQ	LQ	UQ	GM
Communications	2425	53.889	53	54	53.498
Accounting	745	16.556	16	17	16.492
Marketing	497	11.044	11	12	11.489
Psychology	230	5.111	5	6	5.477
Technology	1053	23.4	23	24	23.495

4950

Department	Webster	Huntington-Hill
Communications	54	54
Accounting	17	17
Marketing	11	11
Psychology	5	5
Technology	23	23

110

110

$SD = \frac{4950}{110} = 45$

no MD's needed to get these!!

4. The employees of the Jungle World theme park are negotiating a new contract. There are 213 performers, 273 food workers, and 178 maintenance workers. The twenty-person negotiations committee has members in proportion to the number of employees in each of the three groups. Assign members to the negotiations committee using each of the four methods.

$$SD = 33.2$$

	pop.	SQ	LQ	UQ	GM
performers	213	6.4157	6	7	6.481
food workers	273	8.2229	8	9	8.485
maintenance workers	178	5.3614	5	6	5.477
TOTAL	664	<u>20</u>	19	22	

$$MD = 30.4$$

$$MD = 32.6$$

$$MD = 32.8$$

	Hamilton	Jefferson	Webster	Huntington-Hill
performers	7	7	7	7
food workers	8	8	8	8
maintenance workers	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>
TOTAL	<u>20</u>	<u>20</u>	<u>20</u>	<u>20</u>

$$SD = \frac{664}{20} = 33.2$$