

Second Short Assignment Answer Key

Part I: For the 4 courses listed, one needed to recalculate the group mean from the data in the table.

Here are three statements that do that. Other syntax is possible, but these illustrate the issues.

This one adds up the number of letter grades given:

```
LET GRADE2 = A + AMINUS + BPLUS + B + BMINUS + CPLUS + C + CMINUS + DPLUS + D + DMINUS + F
```

This one adds up the contribution of each letter grade to the group mean:

```
LET meantotal = (A*4) + (AMINUS*3.7) + (BPLUS*3.3) + (B*3) + (BMINUS*2.7) + (CPLUS*2.3) + (C*2) + (CMINUS*1.7) + (DPLUS*1.3) + D + (DMINUS*.7)
```

This one divides the results of the second equation by the results of the first to calculate the mean.

Mean2= meantotal/grade2

Here are the results, compared to the GPA reported in the table. There are some small differences because the fractional grades are calculated past the first digit in the GPA, e.g., 2.33333 vs 2.3 for C+.

COURSE\$	GPA	MEAN2
229	2.521	2.525
270	2.666	2.665
294	2.631	2.644
371	3.092	3.089

The four medians were B,B,B, B+ respectively.

In all cases the median is higher than the mean reflecting the impact of low or failing grades in pulling down the average.

Part II:

1. The most common building type on the south side and northwest side and overall was a cottage. On the east side, the most common type was a residence.

2. The mean building size on the east side was 2289 square feet. On the northwest side it was 1607 square feet. On the south side it was 1051 square feet. If you wanted to calculate the average size for all the houses in the 2 neighborhoods, you calculate a group mean, i.e.,

$$\text{Overall mean} = [(2289 \cdot 101) + (1607 \cdot 362) + (1051 \cdot 101)] / (101 + 362 + 101) = 1630$$

3. The distributions for the east side and the northwest wide approximate normal distributions, but the south side has much less variability. Almost 60 of the 101 houses are about 800 square feet. The stem and leaf plots and the bar graphs indicate there are outliers, that affect the standard deviation. The median is smaller than the mean for all 3 neighborhoods, considerably so for the south side. .