

# Warm-Up 4

Prof. Jordan C. Hanson

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## 1 Formula Area

- *Median*: The value that separates the lower half of a sorted list of data from the upper half. It does not have to be one of the data values.
- *Quartiles*: numbers that divide the data into fourths, or equal frequency in four bins.
- *IQR*: the inter-quartile range is  $Q_3 - Q_1$ , or the third quartile minus the first quartile.

## 2 Locating the Center of the Data

1. Sort the list of GPAs in Tab. 1 into *ascending order*. What is the median of the data?
2. Group the data into *quartiles*, so that one fourth of the sorted data is in each bin. What is the IQR? Are there any outlying data points?
3. Calculate the *cumulative relative frequencies* of the sorted data. Below what number does 90 percent of the data appear? (This leads into a discussion of the percentiles).

Student ID	GPA
A	3.1
B	3.7
C	2.9
D	3.1
E	3.3
F	3.6
G	2.7
H	3.9
I	2.9
J	3.3
K	3.6
I	4.0

Table 1: A table of student GPA's for a single semester.