Formatted I/O is useful for handling problems. An essential application is to calculate and analysis students scores. Considering that the evaluation criteria of a course consists of assignment, midterm exam, and final exam. The raw score *raw* is calculated as the weighted sum, where the corresponding rates for assignment, midterm exam, and final exam are 0.3, 0.3, and 0.4, respectively. There is also an adjustment for the final score, which is calculated as $adjust = raw^{0.4} \times 12 + 25$.

To analysis students' score, two common statistics are average and standard deviation. The average value and the standard deviation can be calculated by the following equations:

$$E[X] = \frac{\sum_{i=1}^{n} x_i}{n}$$

$$Var[X] = \frac{(x_i - E[x])^2}{n} = E[X^2] - E[X]^2$$

$$Std[X] = \sqrt{Var[X]}$$

Your goal is to write a program to compile the input scores in a table.

Requirement: use integer expression for field width and precision.

Input

The input has several cases and ends with a single 0. Each case contains an integer $3 \leq n \leq 100$, which denotes the number of students in the course, and n tuples of scores, which represent the scores of assignment, midterm exam, and final exam, respectively.

Output

For each case, output the received scores, the row scores, the adjusted scores, and their average and standard deviation according to the sample output format. Note that ech table should be separated by a line.

Sample Input

```
4
92 92 30
75 66 17
34 10 57
27 29 27

12
48 73 51
91 64 68
57 54 93
18 89 96
98 99 50
5 79 47
23 24 53
92 78 30
84 81 53
66 32 75
51 91 47
16 85 7

0
```

Sample Output

```
*************************************************************************
Num   Assignments   Midterm Exam   Final Exam   Raw Score   Adjusted Score
*************************************************************************
001            92             92           30        67.2             89.6
002            75             66           17        49.1             82.0
003            34             10           57        36.0             75.3
004            27             29           27        27.6             70.2
*************************************************************************
AVG          57.0           49.3         32.8        45.0             79.3
STD          27.3           31.9         14.8        14.9              7.3
*************************************************************************

*************************************************************************
Num   Assignments   Midterm Exam   Final Exam   Raw Score   Adjusted Score
*************************************************************************
001            48             73           51        56.7             85.3
002            91             64           68        73.7             92.0
003            57             54           93        70.5             90.8
004            18             89           96        70.5             90.8
005            98             99           50        79.1             93.9
006             5             79           47        44.0             79.5
007            23             24           53        35.3             74.9
008            92             78           30        63.0             87.9
009            84             81           53        70.7             90.9
010            66             32           75        59.4             86.5
011            51             91           47        61.4             87.3
012            16             85            7        33.1             73.7
*************************************************************************
AVG          54.1           70.8         55.8        59.8             86.1
STD          31.6           22.3         23.8        14.4              6.4
*************************************************************************
```