11887 Tetrahedrons and Spheres

There are a tetrahedrons and b spheres in the 3D-splace, you're asked to calculate the volume occupied by at least one of them (i.e. volume of the union of the objects).

Input

There will be at most 20 test cases. Each case begins with two integers a, b, the number of tetrahedrons and the number of spheres ($1 \leq a, b \leq 5$). The next a lines each contains 12 integers: x_1, y_1, z_1, x_2, y_2, z_2, x_3, y_3, z_3, x_4, y_4, z_4, the coordinates $(x_i, y_i, z_i)(1 \leq i \leq 4)$ of the four vertices of a tetrahedron. The next b lines each contains 4 integers x, y, z, r, the coordinates of the center (x, y, z) and the radius r ($r \leq 3$). All the coordinate values are integers with absolute values no more than 5. The input is terminated by $a = b = 0$.

Output

For each test case, print a single line, the volume occupied by at least one of them, rounded to three decimal points.

Sample Input

```
1 1
0 0 4 1 0 4 0 1 4 0 0 5
0 0 0 1
0 0
```

Sample Output

```
4.356
```

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