



acm International Collegiate Programming Contest



2008 ACM ICPC South Central USA Regional Programming Contest

## Patterns and Pictures

### Introduction:

Fabrics often have repeating patterns on them, such as a tessellation of carrots and bats.

A given image, such as a carrot in the above example, takes up a certain number of square inches on the fabric. In addition, a piece of fabric with more than one image will have those images in some sort of simple integral ratio, such as 3 carrots for every 2 bats. One instance of images in the given ratio is considered a *full set*.

Fabrics are sold by the square yard (and, for those of you who have forgotten, there are 36 inches to the yard). Given a collection of images, their sizes, and the ratios in which they occur, what is the maximum number of full sets that could possibly appear on one, two, and three square yards of patterned fabric?

(Note that this maximum implies totally arbitrary shapes and placements for the images, which may be different for the three lengths of fabric; the particulars of the layout are irrelevant for the purposes of the problem.)

### Input:

Input to this problem will begin with a line containing a single integer  $N$  ( $1 \leq N \leq 100$ ) indicating the number of data sets. Each data set consists of the following components:

- A line containing a single integer  $I$  ( $1 \leq I \leq 10$ ) indicating the number of images in a particular pattern;
- A series of  $I$  lines, each with two integers  $S, R$  ( $1 \leq S \leq 1000$ ;  $1 \leq R \leq 100$ ) separated by spaces representing the images.  $S$  is the number of square inches that the image occupies;  $R$  is the count of the images contained in a full set.

### Output:

For each data set, print " $A B C$ ", where  $A$  is the maximum number of full sets that could possibly appear on one square yard of fabric,  $B$  is the maximum number of full sets that could possibly appear on two square yards of fabric, and  $C$  is the maximum number of full sets that could possibly appear on three square yards of fabric.

### Sample Input:

```
1
2
15 3
17 2
```

### Sample Output:

```
16 32 49
```

The statements and opinions included in these pages are those of the Hosts of the ACM ICPC South Central USA Regional Programming Contest only. Any statements and opinions included in these pages are not those of Louisiana State University or the LSU Board of Supervisors.

© 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 ACM ICPC South Central USA Regional Programming Contest