

6218 Work Excess

Many government employees are paid “once a month.”

Months do not have the same number of work days, and a given month may have a different number of work days from year to year. It is typical for an agency to assign monthly pay periods that do not necessarily align with the start and end dates of calendar months. This usually results in pay periods with 21 or 22 work days, based on working Monday through Friday.

Some employees have work weeks that do not span Monday to Friday (e.g., medical personnel, law enforcement, computer operations, and facilities personnel). These employees may work more or fewer days in any given pay period than those on the standard work week. At a minimum of once a year, the work excess/work deficit days are reconciled, and employees are either compensated or required to “pay back” time. As can be seen in Table 1 below, a work excess for a pay period is shown as a positive number of days, and a work deficit is shown as a negative number of days.

Monday - Friday	Sun - Thu	Tu-Sat	W-Sun	Th-M	F-Tu	Sat - W
Month 1: January 1 - January 30						
Number of Days Worked						
21 working days (M-F)	22	20	21	22	22	22
Work Excess/Deficit	+1	-1	0	+1	+1	+1
Month 2: January 31 - February 28						
21 working days (M-F)	21	21	20	20	21	21
Work Excess/Deficit	0	0	-1	-1	0	0
Month 3: March 1 - March 30						
22 working days (M-F)	22	22	22	21	20	21
Work Excess/Deficit	0	0	0	-1	-2	-1

Table 1. Table showing work excess/deficit examples for three pay periods.

You work for such a government agency. They would like your team to develop a program that will produce the work excess for all work schedules in a list of monthly pay periods. Each pay period is named for the month that the majority of the pay period falls in.

Input

Input to your program will be a series of lines representing single pay periods. Each line will contain the start and end dates for a pay period (*YYYYMMDD*), and the day of the week of the start date represented as a number: 1 = Sunday, 2 = Monday, ..., 7 = Saturday. Years will range from 1980 through 2040. Values will be separated from each other by commas. Pay periods do not span calendar years.

Output

For each pay period, your program is to print a line that contains:

- the name of the pay period month followed by a space,
- followed by the four-digit year followed by a space,

- followed by seven numbers, separated by commas without embedded whitespace. The first of the seven numbers is to be the number of working days in the pay period for Monday through Friday schedules. The next six numbers will be the work excess/work deficit total for the other six schedules, in the order shown in the example above. Plus and minus signs are to be printed only to indicate a non-zero excess or deficit, respectively.

No leading or trailing whitespace is to appear on an output line.

Sample Input

```
20060101,20060130,1
20060301,20060330,4
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Sample Output

```
January 2006 21,+1,-1,0,+1,+1,+1
March 2006 22,0,0,0,-1,-2,-1
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