**SIENA COLLEGE**

**26th Annual High School Programming Contest**

**April 27, 2013**

###### Problem #6: Hockey, Hockey, Hockey.

Background Information:  During a 20 minute hockey period, a team can score goals. Some of these goals occur when on the “player-advantage”; this occurs when there are more skaters on the ice for the scoring team than on the opponent. This happens when a team commits penalties; players who commit penalties are sent to a penalty box for a specific amount of time, leaving a team with less players available on the ice. Goals scored when on the player-advantage are known as **power play goals**.

Here are the rules to power play goals:

* Penalties can be minors (MIN) or majors (MAJ). Minor penalties last for two minutes. Major penalties last for five minutes. A penalty on a team removes a player from the ice and leaves the team down a player for that team. If the team is playing with fewer players on the ice than the over, then that team is *short-handed*.
* A power play is an interval of time when a team is short-handed. This could be due to multiple, overlapping penalties. Goals scored during the power play by the team that is not short-handed are considered to be power play goals.
* Minor penalties can be accrued by both teams at the same time; these are known as coincidental minors. In this case, neither team gets a player advantage due to those penalties.
* A power play goal erases a current non-coincidental minor. If more than one non-coincidental minor penalty is pending, the one with the least remaining time is erases, and a player is returned. A goal scored when a penalty expires is not considered to be a power play goal.
* Major penalties are not erased by power play goals. If a power play goal is scored during a five minute major, and a pending minor is not erased, a new power play interval starts, with the remaining time left on the major penalty.

Given the penalties and the goals scored, determine how many power play goals were scored by team A.

The information you will be given includes the event (MIN, MAJ, GOAL followed by a time in minutes and seconds between 0:00 (beginning of the period) and 20:00 (end of the period).

###### Programming Problem:

Input: Integer N, followed by N penalties by team A

Integer M, followed by M penalties by team B

Integer X, followed by X goals scored by team A

Integer Y, followed by Y goals scored by team B

Output:  I **of** J, where I is the number of power play goals scored by team A out of J power plays.

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###### Problem 6 continued:

###### Example 1:  Input:  2

MIN 8:23

MIN 13:55

3

MIN 6:16

MAJ 8:23

MIN 16:08

6

GOAL 4:22

GOAL 10:25

GOAL 11:22

GOAL 12:29

GOAL 14:30

GOAL 17:57

1

GOAL 13:19

###### Output: 4 of 5

###### Example 2:  Input:  1

MIN 4:00

3

MIN 4:00

MIN 5:00

MIN 6:00

5

GOAL 4:22

GOAL 5:25

GOAL 6:02

GOAL 7:13

GOAL 14:00

0

###### Output: 2 of 2

###### Example 3:  Input:  0

2

MIN 14:00

MIN 17:02

2

GOAL 14:22

GOAL 19:02

0

###### Output: 1 of 2