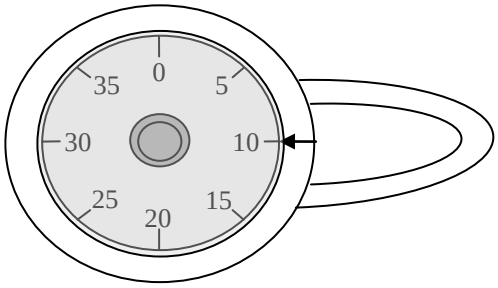
5 Lock Ticks
Input File: LockTicksIn.txt

Logan, being always pressed for time, wants to purchase a standard combination lock that opens with the least number of “ticks”. The ticks are numbered from 0 to 39 on the rotatable dial (center portion) of the lock, increasing in the clockwise direction. The fixed part of the lock has an arrow on it, which always "points to" one of the ticks on the dial. Of course, the arrow points to different ticks as the dial is turned.



The lock comes with three code numbers T1, T2, T3. These are non-negative integers less than 40, and no two of the three are the same. The lock is opened using a three step procedure:

1. Turn the dial clockwise exactly two full revolutions, and continue to turn it clockwise until the arrow points to tick T1.
2. Turn the dial one full revolution counterclockwise and continue to turn it counterclockwise until the arrow points to tick T2.
3. Turn the dial clockwise until the arrow points to tick T3.

The lock should then open. Your task is to tell Logan how many ticks are required to open a lock, given the lock’s starting tick, and the lock’s combination: T1, T2, T3.

Inputs:
There will be one line of input that contains the number of locks Logan is considering. This will be followed by one line per lock that contains four integers each separated by a space. These integers represent the starting tick, followed by the lock’s code numbers: T1, T2, T3.

Output:
There will be one line of output for each lock that contains the number of ticks required to open the lock.

Sample input

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6
0 30 0 35
9 19 6 32
35 0 10 5
0 39 0 38
4 5 6 7
7 6 5 4
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Sample output

145
191
170
124
199
161