



AMERICAN COMPUTER SCIENCE LEAGUE

2019-2020

Contest #1

Intermediate Division - Number Transformation

PROBLEM: Given a positive integer (call it N) and a position in that integer (call it P) transform N . To transform N , find the P^{th} digit of N from the right. Replace each of the digits to the left of the P^{th} digit by the sum of that digit and the P^{th} digit. If the sum is greater than 9, use just the units digits (see the second example below). Replace each of the digits to the right of the P^{th} digit by the absolute value of the difference between it and the P^{th} digit. Do not change the P^{th} digit.

Example 1: $N=102439$, $P=3$. Answer is: $(1+4)(0+4)(2+4)4(|3-4|)(|9-4|) \Rightarrow 546415$

Example 2: $N=4329$, $P=1$. Answer is: $(4+9)(3+9)(2+9)9 \Rightarrow (13)(12)(11)9 \Rightarrow 3219$

INPUT: There will be 5 sets of data. Each set contains two positive integers: N and P . N will be less than 10^{15} , and P will be valid. No input will cause an output to have a leading digit of 0.

OUTPUT: The transformed value of each input set. The printed number may not have any spaces between the digits.

SAMPLE INPUT: (<http://www.datafiles.acsl.org/2020/contest1/int-sample-input.txt>)

```
296351  5
762184  3
45873216 7
19750418 6
386257914 5
```

SAMPLE OUTPUT:

1. 193648
2. 873173
3. 95322341
4. 86727361
5. 831752441