2018 DCP1208 TA Course

HW7 Functions

HW7 a (20%)

Please input a positive number N,

output a value N!

Input	Output
5	120
8	40320

HW7 b (20%)

Input two interget number,

output the value of $1^k+2^k+3^k+4^k+...+n^k$.

Input	**Output**
4 10	25333
5 13	1002001

HW7 c (20%)

Assume a function f(x) = (x+3)/(x+2).

Please enter an number a to calculate f(f(f(a))).

Input	Output
58	1.30017
1	1.30303

HW7 d (20%)

Please input a point(u, v) and a line(ax+by=c),

calculate the minimum distance of the point to the line.

Input	**Output**
2 6 13 10 7	4.81672
5 6 15 19 13	7.27049
8 3 5 5 3	7.35391

HW7 e (20%)

Consider a sequence: $a(1) = 3$ and $5a(n+1) = 4a(n)+1$,

please input a number calculate a(a) value.

Input	Output
89	1
43	1.00017

HW7 f (Bouns 10%)

For a positive integer n, let f(n) denote the sum of the digits of n when represented in base 10. It is easy to see that the sequence of number n, f(n), f(f(n)),f(f(f(n))),... eventually becomes a single digit number that repeats forever. Let this single digit be denoted g(n).

For example, consider n = 1234567892. Then:

f(n) = 1+2+3+4+5+6+7+8+9+2=47

f(f(n)) = 4+7=11

f(f(f(n))) = 1+1= 2

Therefore, g(1234567892) = 2

HW7 f (Bouns)

Input	Output
2	2
11	2
47	2
1234567892	2
0	

HW7 Scores

- a 20%
- b 20%
- c 20%
- d 20%
- e 20%

The basic score is 100

- bonus 10%

Done all question is 110

(If you can't submit on time, we can allow you to submit again in a week, but your score will be discount off 20%.)

If you have any question about this homework,
please email to yuansyuntw@gmail.com