



Assumption University
Faculty of Engineering
Semester 1/2018

CE3111 Design And Analysis of Algorithms
Term Project

1756 One and a Half Digger
(Timus Online Judge)

Submit to
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by
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Problem :

Vitya Perestukin is solving the following problem: Three diggers can dig a trench in exactly one day. How many diggers are needed to dig the same trench in exactly two days? Vitya has concluded that one and a half diggers are needed. But there can't be such an answer. Actually, two diggers are needed: on the first day only one digger will work, and on the second day they both will work.

It is known that m diggers can dig a trench in exactly d_1 days if they all work every day. Help Vitya compile a work schedule according to which a minimal number of diggers can dig a trench in exactly d_2 days.

Difficulty: 162

Input

The only input line contains the integers m , d_1 , and d_2 ($1 \leq m, d_1, d_2 \leq 10\,000$).

Output

In the only line output d_2 integers, which are the numbers of diggers that should work on each of the days so that the trench will be dug in time. It is possible that on some days (including the last day) nobody will work. If there are several solutions, output any of them.

Sample

input	output
3 1 2	1 2

Problem Solution:

```
1  import sys
2
3  x = input().split()
4  m = int(x[0])
5  d1 = int (x[1])
6  d2 = int (x[2])
7
8  if m <1:
9      |   sys.exit()
10 if d1 & d2 >= 10000:
11     |   sys.exit()
12
13 for_one_day = m*d1
14
15 mini_worker = for_one_day/d2
16 max_worker = (for_one_day+d2-1)/d2
17
18 max_worker_day_count = for_one_day%d2
19 print('max_worker_day ',max_worker_day_count)
20 mini_worker_day_count = d2 - max_worker_day_count
21 print('mini_worker_day',mini_worker_day_count)
22
23 for i in range(max_worker_day_count):
24     |   print('max_worker',int(max_worker))
25
26 for j in range(mini_worker_day_count):
27     |   print('mini_worker',int(mini_worker))
```

Line 13: I calculated Maximum Work Power to finish the job

Line 15: Calculation Minimum worker need for a day for d2

Line 16: Calculation Maximum worker for a day for d2

Line 18: Maximum worker working day

Line 19: Minimum worker working day

Test Cases:

```
[→ Algorithm class python3 onehalfdiggers.py
3 1 2
max_worker_day 1
mini_worker_day 1
max_worker 2
mini_worker 1
```

```
[→ Algorithm class python3 onehalfdiggers.py
3 3 6
max_worker_day 3
mini_worker_day 3
max_worker 2
max_worker 2
max_worker 2
mini_worker 1
mini_worker 1
mini_worker 1
```

```
[→ Algorithm class python3 onehalfdiggers.py
5 5 6
max_worker_day 1
mini_worker_day 5
max_worker 5
mini_worker 4
mini_worker 4
mini_worker 4
mini_worker 4
mini_worker 4
```

```
[→ Algorithm class python3 onehalfdiggers.py
3 2 9
max_worker_day 6
mini_worker_day 3
max_worker 1
max_worker 1
max_worker 1
max_worker 1
max_worker 1
max_worker 1
mini_worker 0
mini_worker 0
mini_worker 0
```

Submission Result:

Problem: 1756

Language :Python 3.6

Execution time:0.109

Memory used: 608KB

ID	Date	Author	Problem	Language	Judgement result	Test #	Execution time	Memory used
8153641	21:44:03 28 Nov 2018	winshaine	1756. One and a Half Diggers	Python 3.6	Accepted		0.109	608 KB