

2014 ACM-ICPC Regional Programming Contest

DEPARTMENT OF COMPUTER ENGINEERING

FACULTY OF ENGINEERING - CHULALONGKORN UNIVERSITY

November 15, 2014

Contest Session

Task Setters

Special Thanks

1



Time limit for each problem (second)

A	7
B	2
C	3
D	2
E	1
F	1
G	2
H	1
I	1
J	1
K	1
L	1

Memory limit : 512 MB (All problems)

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B	Combination				
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">INPUT</td> <td style="width: 50%; padding: 5px;">STANDARD INPUT</td> </tr> <tr> <td style="width: 50%; padding: 5px;">OUTPUT</td> <td style="width: 50%; padding: 5px;">STANDARD OUTPUT</td> </tr> </table>	INPUT	STANDARD INPUT	OUTPUT	STANDARD OUTPUT
INPUT	STANDARD INPUT				
OUTPUT	STANDARD OUTPUT				

$$\binom{n}{r} = \frac{n!}{r!(n-r)!}$$

$$\binom{5}{3} = 10, \quad \binom{10}{0} = 1, \quad \binom{15}{14} = 15$$

$$\sum_{n=low}^{high} \sum_{r=0}^n \binom{n}{r} \bmod 2$$

Input

low high low high]

Output

D]

Note

$$\binom{2}{0} = 1, \binom{2}{1} = 2, \binom{2}{2} = 1, \binom{3}{0} = 1, \binom{3}{1} = 3, \binom{3}{2} = 3, \binom{3}{3} = 1$$

Example

Input	Output
2 3 10 20 100 200 0 0	6 70 2510



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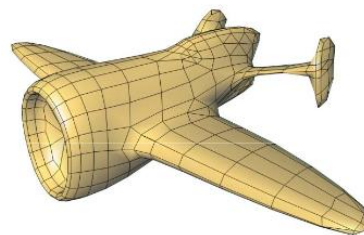
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C

Mesh Cutter

INPUT	STANDARD INPUT
OUTPUT	STANDARD OUTPUT



triangular

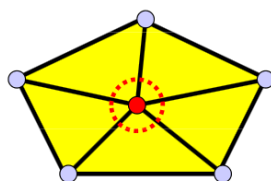
polygonal

usually triangles or quads
orientable manifold without boundary

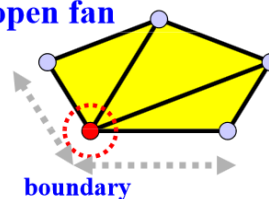
exactly

closed fan

closed fan



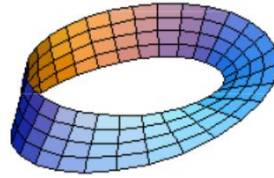
open fan





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]

collinear

can be co-planar

]

after cut

Input

n f

n

f

x y z

v

v

]

x_1 y_1 z_1 x_2 y_2 z_2 x_3 y_3 z_3 x_4

]

]

]

y_4 z_4

]

]

Important:

]

]

]

]

]

Output

Line 1:

Line 2:

Line 3:

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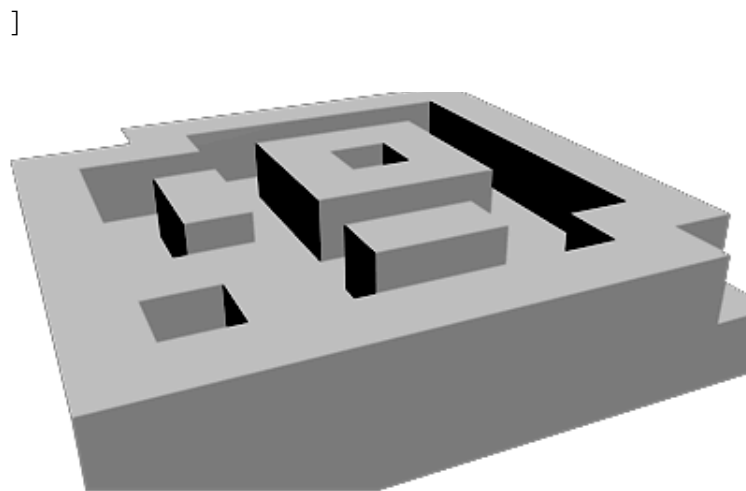
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Explanation



Note



Input

N N

A_x A_y B_x B_y C_x C_y

A_x A_y B_x B_y C_x C_y

W_P C_A C_B C_C W_P C_A C_B C_C

Output

]

]

]

Example

Input	Output
1 10 10 100 10 50 80 10 10 10 30	Case 1: 2960.5351



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E

Zeroes

INPUT	STANDARD INPUT
OUTPUT	STANDARD OUTPUT

```

fzero(n)
]      fzero(2)    fzero(5)    fzero(10)
      fzero(v)      ]
fzero()

```

Input

```

low    high    low    high
]

```

Output

```

]      fzero(v)

```

Note

```

fzero(3)    fzero(4)    fzero(5)    fzero(6)    fzero(1)    fzero(2)
fzero(9)      fzero(10)
fzero(v)

```

Example

Input	Output
1 10 1 3 0 0	3 1

•

Output

]

Example

Input	Output
2 4 4 1 1 1 4 1 3 1 1 1 1 2 1 1 1 1 1 3 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 0

Input

T

T

T

- N M
-]

Output

]

Example

Input	Output
1 3 4 2 6 3 2 7 5 7 5 6 7 3 2	-L-- L-LL LL--



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H

Hidden Plus Signs

INPUT

STANDARD INPUT

OUTPUT

STANDARD OUTPUT

]

]

]

]

]

]

]

0	1	1	0	0
1	1	2	0	0
1	2	1	1	1
0	0	1	0	0
0	0	1	0	0

]

Input

T

T

R

C

R C



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Output

]

Example

Input	Output
2 5 5 0 1 1 0 0 1 1 2 0 0 1 2 1 1 1 0 0 1 0 0 0 0 1 0 0 10 11 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 1 1 0 1 0 0 0 0 0 1 1 1 2 2 1 1 0 0 0 0 1 2 2 1 1 2 2 0 0 0 0 1 1 3 1 0 0 1 0 0 0 0 0 2 1 2 2 1 1 1 1 0 1 0 0 1 1 1 0 1 1 0 1 1 1 0 1 1 1 1 3 1 1 0 1 0 0 0 0 1 0 0 1 0 0 0 0 0 0 0 1 0 0 0 0	2 3 3 9 8 10

Note

0	0	0	0	1	1	0	0	0	0	0
0	0	0	0	1	1	0	1	0	0	0
0	0	1	1	1	2	2	1	1	0	0
0	0	1	2	2	1	1	2	2	0	0
0	0	1	1	3	1	0	0	1	0	0
0	0	0	2	1	2	2	1	1	1	1
0	1	0	0	1	1	0	1	1	1	0
1	1	1	0	1	1	1	1	3	1	1
0	1	0	0	0	0	1	0	0	1	0
0	0	0	0	0	0	1	0	0	0	0



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I

The Programmers

INPUT

STANDARD INPUT

OUTPUT

STANDARD OUTPUT

Input

- P S C m P]
- P S C
- m

Output

Example

Input	Output
2 2 2 1 4 1 1 1 2 2 1 2 2 4 3 1 12 1 1 1 2 1 3 2 1 2 2 2 3 3 1 3 2 3 3 4 1 4 2 4 3	2 3



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J

Blanket

INPUT	STANDARD INPUT
OUTPUT	STANDARD OUTPUT

M] M n
]]
] a b
 a b-a
]
]
]
]
] n]

Input

T T
]
 • n M n M
 • a b a b

Output

n
] n]

Example

Input	Output
1 3 30 2 5 3 5 3 6	6 9 9 6



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K

Concert Tour

INPUT	STANDARD INPUT
OUTPUT	STANDARD OUTPUT

]

]]

]]

]

c

c]]

]]

s

]

]]

]]

]

]

]]]

]]

]

]]

Input

n

n

•

s c

s c

•

c

]]

]

•

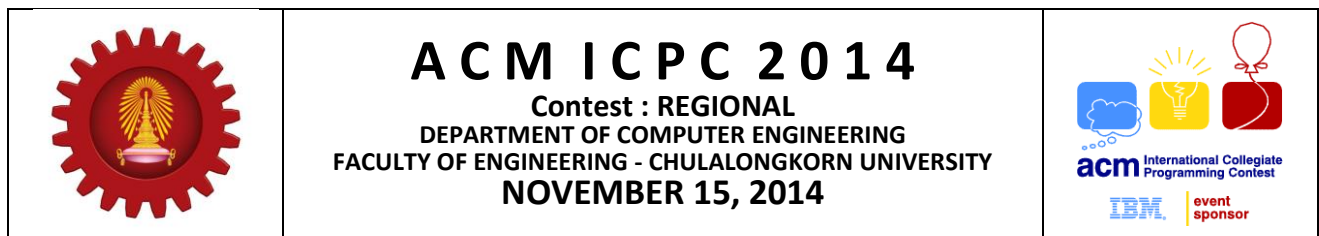
]

.

Output

Example

Input	Output
3 3 4 1 3 20 40 50 20 1 2 20 50 50 1 0 10 10 10 0 10 10 10 0 3 3 20 20 20 20 20 20 20 20 20 0 20 40 20 0 40 40 10 0 2 4 10 20 10 20 20 10 20 10 0 5 5 0	170 60 65



Output

Example

Input	Output
1 3 3 2 2 3 1 -1 3 1 1 0	1