

This is the output of the program II_findAllResonances_ord5.java, which gives the list of semigroups of order 5 with resonant decompositions. The number of semigroups with at least one resonance and the total number of different resonances is given at the end of the file.

The semigroup #1

1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1

has #50 resonances.

Resonance #1

S0: 1 5
S1: 1 2 3 4

Resonance #2

S0: 1 4
S1: 1 2 3 5

Resonance #3

S0: 1 3
S1: 1 2 4 5

Resonance #4

S0: 1 2
S1: 1 3 4 5

Resonance #5

S0: 1 4 5
S1: 1 2 3

Resonance #6

S0: 1 3 5
S1: 1 2 4

Resonance #7

S0: 1 2 5
S1: 1 3 4

Resonance #8

S0: 1 3 4
S1: 1 2 5

Resonance #9

S0: 1 2 4
S1: 1 3 5

Resonance #10

S0: 1 2 3
S1: 1 4 5

Resonance #11

S0: 1 4 5
S1: 1 2 3 5

Resonance #12

S0: 1 4 5
S1: 1 2 3 4

Resonance #13

S0: 1 3 5
S1: 1 2 4 5

Resonance #14

S0: 1 3 5
S1: 1 2 3 4

Resonance #15

S0: 1 2 5
S1: 1 3 4 5

Resonance #16
S0: 1 2 5
S1: 1 2 3 4
Resonance #17
S0: 1 3 4
S1: 1 2 4 5
Resonance #18
S0: 1 3 4
S1: 1 2 3 5
Resonance #19
S0: 1 2 4
S1: 1 3 4 5
Resonance #20
S0: 1 2 4
S1: 1 2 3 5
Resonance #21
S0: 1 2 3
S1: 1 3 4 5
Resonance #22
S0: 1 2 3
S1: 1 2 4 5
Resonance #23
S0: 1 3 4 5
S1: 1 2
Resonance #24
S0: 1 2 4 5
S1: 1 3
Resonance #25
S0: 1 2 3 5
S1: 1 4
Resonance #26
S0: 1 2 3 4
S1: 1 5
Resonance #27
S0: 1 3 4 5
S1: 1 2 5
Resonance #28
S0: 1 3 4 5
S1: 1 2 4
Resonance #29
S0: 1 3 4 5
S1: 1 2 3
Resonance #30
S0: 1 2 4 5
S1: 1 3 5
Resonance #31
S0: 1 2 4 5
S1: 1 3 4
Resonance #32
S0: 1 2 4 5
S1: 1 2 3
Resonance #33
S0: 1 2 3 5
S1: 1 4 5
Resonance #34
S0: 1 2 3 5
S1: 1 3 4

```

Resonance #35
S0: 1 2 3 5
S1: 1 2 4
Resonance #36
S0: 1 2 3 4
S1: 1 4 5
Resonance #37
S0: 1 2 3 4
S1: 1 3 5
Resonance #38
S0: 1 2 3 4
S1: 1 2 5
Resonance #39
S0: 1 3 4 5
S1: 1 2 4 5
Resonance #40
S0: 1 3 4 5
S1: 1 2 3 5
Resonance #41
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #42
S0: 1 2 4 5
S1: 1 3 4 5
Resonance #43
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #44
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #45
S0: 1 2 3 5
S1: 1 3 4 5
Resonance #46
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #47
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #48
S0: 1 2 3 4
S1: 1 3 4 5
Resonance #49
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #50
S0: 1 2 3 4
S1: 1 2 3 5
*****

```

```

The semigroup #2
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 1 2
has #26 resonances.
Resonance #1

```

S0: 1 2
S1: 1 3 4 5
Resonance #2
S0: 1 2 5
S1: 1 3 4
Resonance #3
S0: 1 2 4
S1: 1 3 5
Resonance #4
S0: 1 2 3
S1: 1 4 5
Resonance #5
S0: 1 2 5
S1: 1 2 3 4
Resonance #6
S0: 1 2 4
S1: 1 3 4 5
Resonance #7
S0: 1 2 4
S1: 1 2 3 5
Resonance #8
S0: 1 2 3
S1: 1 3 4 5
Resonance #9
S0: 1 2 3
S1: 1 2 4 5
Resonance #10
S0: 1 2 4 5
S1: 1 3
Resonance #11
S0: 1 2 3 5
S1: 1 4
Resonance #12
S0: 1 2 3 4
S1: 1 5
Resonance #13
S0: 1 2 4 5
S1: 1 3 4
Resonance #14
S0: 1 2 4 5
S1: 1 2 3
Resonance #15
S0: 1 2 3 5
S1: 1 3 4
Resonance #16
S0: 1 2 3 5
S1: 1 2 4
Resonance #17
S0: 1 2 3 4
S1: 1 4 5
Resonance #18
S0: 1 2 3 4
S1: 1 3 5
Resonance #19
S0: 1 2 3 4
S1: 1 2 5
Resonance #20

```

S0: 1 2 4 5
S1: 1 2 3 5
Resonance #21
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #22
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #23
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #24
S0: 1 2 3 4
S1: 1 3 4 5
Resonance #25
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #26
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #3
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 1 5
has #31 resonances.
Resonance #1
S0: 1 5
S1: 1 2 3 4
Resonance #2
S0: 1 4 5
S1: 1 2 3
Resonance #3
S0: 1 3 5
S1: 1 2 4
Resonance #4
S0: 1 2 5
S1: 1 3 4
Resonance #5
S0: 1 4 5
S1: 1 2 3 5
Resonance #6
S0: 1 4 5
S1: 1 2 3 4
Resonance #7
S0: 1 3 5
S1: 1 2 4 5
Resonance #8
S0: 1 3 5
S1: 1 2 3 4
Resonance #9
S0: 1 2 5
S1: 1 3 4 5
Resonance #10
S0: 1 2 5

```

S1: 1 2 3 4
Resonance #11
S0: 1 3 4 5
S1: 1 2
Resonance #12
S0: 1 2 4 5
S1: 1 3
Resonance #13
S0: 1 2 3 5
S1: 1 4
Resonance #14
S0: 1 3 4 5
S1: 1 2 5
Resonance #15
S0: 1 3 4 5
S1: 1 2 4
Resonance #16
S0: 1 3 4 5
S1: 1 2 3
Resonance #17
S0: 1 2 4 5
S1: 1 3 5
Resonance #18
S0: 1 2 4 5
S1: 1 3 4
Resonance #19
S0: 1 2 4 5
S1: 1 2 3
Resonance #20
S0: 1 2 3 5
S1: 1 4 5
Resonance #21
S0: 1 2 3 5
S1: 1 3 4
Resonance #22
S0: 1 2 3 5
S1: 1 2 4
Resonance #23
S0: 1 3 4 5
S1: 1 2 4 5
Resonance #24
S0: 1 3 4 5
S1: 1 2 3 5
Resonance #25
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #26
S0: 1 2 4 5
S1: 1 3 4 5
Resonance #27
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #28
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #29
S0: 1 2 3 5

```

S1: 1 3 4 5
Resonance #30
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #31
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #16
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 1 2
1 1 1 2 1
has #22 resonances.
Resonance #1
S0: 1 5
S1: 1 2 3 4
Resonance #2
S0: 1 4
S1: 1 2 3 5
Resonance #3
S0: 1 2
S1: 1 3 4 5
Resonance #4
S0: 1 3 5
S1: 1 2 4
Resonance #5
S0: 1 3 4
S1: 1 2 5
Resonance #6
S0: 1 2 3
S1: 1 4 5
Resonance #7
S0: 1 3 5
S1: 1 2 3 4
Resonance #8
S0: 1 2 5
S1: 1 2 3 4
Resonance #9
S0: 1 3 4
S1: 1 2 3 5
Resonance #10
S0: 1 2 4
S1: 1 2 3 5
Resonance #11
S0: 1 2 3
S1: 1 3 4 5
Resonance #12
S0: 1 2 3
S1: 1 2 4 5
Resonance #13
S0: 1 2 4 5
S1: 1 3
Resonance #14
S0: 1 2 4 5
S1: 1 2 3

```

```

Resonance #15
S0: 1 2 3 5
S1: 1 2 4
Resonance #16
S0: 1 2 3 4
S1: 1 2 5
Resonance #17
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #18
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #19
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #20
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #21
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #22
S0: 1 2 3 4
S1: 1 2 3 5

```

```

*****

```

```

The semigroup #17

```

```

1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 1 2
1 1 1 2 2

```

```

has #16 resonances.

```

```

Resonance #1

```

```

S0: 1 2

```

```

S1: 1 3 4 5

```

```

Resonance #2

```

```

S0: 1 2 3

```

```

S1: 1 4 5

```

```

Resonance #3

```

```

S0: 1 2 5

```

```

S1: 1 2 3 4

```

```

Resonance #4

```

```

S0: 1 2 4

```

```

S1: 1 2 3 5

```

```

Resonance #5

```

```

S0: 1 2 3

```

```

S1: 1 3 4 5

```

```

Resonance #6

```

```

S0: 1 2 3

```

```

S1: 1 2 4 5

```

```

Resonance #7

```

```

S0: 1 2 4 5

```

```

S1: 1 3

```

```

Resonance #8

```

```

S0: 1 2 4 5

```

```

S1: 1 2 3

```

```

Resonance #9

```



```

S0: 1 2 3 5
S1: 1 2 4
Resonance #10
S0: 1 2 3 4
S1: 1 2 5
Resonance #11
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #12
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #13
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #14
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #15
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #16
S0: 1 2 3 4
S1: 1 2 3 5
*****

```

```

The semigroup #18
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 1 2
1 1 1 2 3
has #12 resonances.

```

```

Resonance #1
S0: 1 3 5
S1: 1 2 4
Resonance #2
S0: 1 3 4
S1: 1 2 5
Resonance #3
S0: 1 2 3
S1: 1 4 5
Resonance #4
S0: 1 3 5
S1: 1 2 3 4
Resonance #5
S0: 1 3 4
S1: 1 2 3 5
Resonance #6
S0: 1 2 3
S1: 1 3 4 5
Resonance #7
S0: 1 2 3
S1: 1 2 4 5
Resonance #8
S0: 1 2 3 5
S1: 1 2 4
Resonance #9
S0: 1 2 3 4

```

```

S1: 1 2 5
Resonance #10
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #11
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #12
S0: 1 2 3 4
S1: 1 2 3 5
*****

```

```

The semigroup #19
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 1 2
1 1 1 2 4

```

has #10 resonances.

```

Resonance #1
S0: 1 4
S1: 1 2 3 5
Resonance #2
S0: 1 3 4
S1: 1 2 5
Resonance #3
S0: 1 3 4
S1: 1 2 3 5
Resonance #4
S0: 1 2 4
S1: 1 2 3 5
Resonance #5
S0: 1 2 4 5
S1: 1 3
Resonance #6
S0: 1 2 4 5
S1: 1 2 3
Resonance #7
S0: 1 2 3 4
S1: 1 2 5
Resonance #8
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #9
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #10
S0: 1 2 3 4
S1: 1 2 3 5
*****

```

```

The semigroup #27
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 1 4
1 1 1 4 5
has #21 resonances.
Resonance #1

```

S0: 1 5
S1: 1 2 3 4
Resonance #2
S0: 1 4 5
S1: 1 2 3
Resonance #3
S0: 1 3 5
S1: 1 2 4
Resonance #4
S0: 1 2 5
S1: 1 3 4
Resonance #5
S0: 1 4 5
S1: 1 2 3 4
Resonance #6
S0: 1 3 5
S1: 1 2 3 4
Resonance #7
S0: 1 2 5
S1: 1 2 3 4
Resonance #8
S0: 1 3 4 5
S1: 1 2
Resonance #9
S0: 1 2 4 5
S1: 1 3
Resonance #10
S0: 1 2 3 5
S1: 1 4
Resonance #11
S0: 1 3 4 5
S1: 1 2 4
Resonance #12
S0: 1 3 4 5
S1: 1 2 3
Resonance #13
S0: 1 2 4 5
S1: 1 3 4
Resonance #14
S0: 1 2 4 5
S1: 1 2 3
Resonance #15
S0: 1 2 3 5
S1: 1 3 4
Resonance #16
S0: 1 2 3 5
S1: 1 2 4
Resonance #17
S0: 1 3 4 5
S1: 1 2 4 5
Resonance #18
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #19
S0: 1 2 4 5
S1: 1 3 4 5
Resonance #20

```

S0: 1 2 4 5
S1: 1 2 3 4
Resonance #21
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #34
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 2 1
1 1 1 1 2
has #22 resonances.
Resonance #1
S0: 1 2
S1: 1 3 4 5
Resonance #2
S0: 1 2 5
S1: 1 3 4
Resonance #3
S0: 1 2 4
S1: 1 3 5
Resonance #4
S0: 1 2 3
S1: 1 4 5
Resonance #5
S0: 1 2 5
S1: 1 2 3 4
Resonance #6
S0: 1 2 4
S1: 1 2 3 5
Resonance #7
S0: 1 2 3
S1: 1 3 4 5
Resonance #8
S0: 1 2 3
S1: 1 2 4 5
Resonance #9
S0: 1 2 4 5
S1: 1 3
Resonance #10
S0: 1 2 3 5
S1: 1 4
Resonance #11
S0: 1 2 3 4
S1: 1 5
Resonance #12
S0: 1 2 4 5
S1: 1 2 3
Resonance #13
S0: 1 2 3 5
S1: 1 3 4
Resonance #14
S0: 1 2 3 5
S1: 1 2 4
Resonance #15
S0: 1 2 3 4

```

```

S1: 1 3 5
Resonance #16
S0: 1 2 3 4
S1: 1 2 5
Resonance #17
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #18
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #19
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #20
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #21
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #22
S0: 1 2 3 4
S1: 1 2 3 5
*****

```

The semigroup #35

```

1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 2 1
1 1 1 1 3

```

has #13 resonances.

```

Resonance #1
S0: 1 2 3
S1: 1 4 5
Resonance #2
S0: 1 2 3
S1: 1 3 4 5
Resonance #3
S0: 1 2 3
S1: 1 2 4 5
Resonance #4
S0: 1 2 3 5
S1: 1 4
Resonance #5
S0: 1 2 3 4
S1: 1 5
Resonance #6
S0: 1 2 3 5
S1: 1 3 4
Resonance #7
S0: 1 2 3 5
S1: 1 2 4
Resonance #8
S0: 1 2 3 4
S1: 1 3 5
Resonance #9
S0: 1 2 3 4
S1: 1 2 5

```

Resonance #10
S0: 1 2 3 5
S1: 1 3 4 5
Resonance #11
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #12
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #13
S0: 1 2 3 4
S1: 1 2 3 5

The semigroup #36
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 2 1
1 1 1 1 5

has #15 resonances.

Resonance #1
S0: 1 2 5
S1: 1 3 4
Resonance #2
S0: 1 2 5
S1: 1 3 4 5
Resonance #3
S0: 1 2 5
S1: 1 2 3 4
Resonance #4
S0: 1 2 4 5
S1: 1 3
Resonance #5
S0: 1 2 3 5
S1: 1 4
Resonance #6
S0: 1 2 4 5
S1: 1 3 5
Resonance #7
S0: 1 2 4 5
S1: 1 2 3
Resonance #8
S0: 1 2 3 5
S1: 1 4 5
Resonance #9
S0: 1 2 3 5
S1: 1 3 4
Resonance #10
S0: 1 2 3 5
S1: 1 2 4
Resonance #11
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #12
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #13

```

S0: 1 2 3 5
S1: 1 3 4 5
Resonance #14
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #15
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #47
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 2 2
1 1 1 2 2
has #16 resonances.
Resonance #1
S0: 1 2
S1: 1 3 4 5
Resonance #2
S0: 1 2 3
S1: 1 4 5
Resonance #3
S0: 1 2 5
S1: 1 2 3 4
Resonance #4
S0: 1 2 4
S1: 1 2 3 5
Resonance #5
S0: 1 2 3
S1: 1 3 4 5
Resonance #6
S0: 1 2 3
S1: 1 2 4 5
Resonance #7
S0: 1 2 4 5
S1: 1 3
Resonance #8
S0: 1 2 4 5
S1: 1 2 3
Resonance #9
S0: 1 2 3 5
S1: 1 2 4
Resonance #10
S0: 1 2 3 4
S1: 1 2 5
Resonance #11
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #12
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #13
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #14
S0: 1 2 3 5

```

```

S1: 1 2 3 4
Resonance #15
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #16
S0: 1 2 3 4
S1: 1 2 3 5
*****

```

The semigroup #48

```

1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 2 2
1 1 1 2 3
has #8 resonances.

```

Resonance #1

```

S0: 1 2 3
S1: 1 4 5

```

Resonance #2

```

S0: 1 2 3
S1: 1 3 4 5

```

Resonance #3

```

S0: 1 2 3
S1: 1 2 4 5

```

Resonance #4

```

S0: 1 2 3 5
S1: 1 2 4

```

Resonance #5

```

S0: 1 2 3 4
S1: 1 2 5

```

Resonance #6

```

S0: 1 2 3 5
S1: 1 2 3 4

```

Resonance #7

```

S0: 1 2 3 4
S1: 1 2 4 5

```

Resonance #8

```

S0: 1 2 3 4
S1: 1 2 3 5

```

The semigroup #55

```

1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 2 3
1 1 1 3 2

```

has #11 resonances.

Resonance #1

```

S0: 1 2 5
S1: 1 3 4

```

Resonance #2

```

S0: 1 2 4
S1: 1 3 5

```

Resonance #3

```

S0: 1 2 3
S1: 1 4 5

```

Resonance #4

S0: 1 2 5
 S1: 1 2 3 4
 Resonance #5
 S0: 1 2 4
 S1: 1 2 3 5
 Resonance #6
 S0: 1 2 3
 S1: 1 3 4 5
 Resonance #7
 S0: 1 2 3
 S1: 1 2 4 5
 Resonance #8
 S0: 1 2 3 5
 S1: 1 3 4
 Resonance #9
 S0: 1 2 3 4
 S1: 1 3 5
 Resonance #10
 S0: 1 2 3 5
 S1: 1 2 3 4
 Resonance #11
 S0: 1 2 3 4
 S1: 1 2 3 5

The semigroup #56
 1 1 1 1 1
 1 1 1 1 1
 1 1 1 1 1
 1 1 1 4 1
 1 1 1 1 5
 has #17 resonances.

Resonance #1
 S0: 1 4 5
 S1: 1 2 3
 Resonance #2
 S0: 1 4 5
 S1: 1 2 3 5
 Resonance #3
 S0: 1 4 5
 S1: 1 2 3 4
 Resonance #4
 S0: 1 3 4 5
 S1: 1 2
 Resonance #5
 S0: 1 2 4 5
 S1: 1 3
 Resonance #6
 S0: 1 3 4 5
 S1: 1 2 5
 Resonance #7
 S0: 1 3 4 5
 S1: 1 2 4
 Resonance #8
 S0: 1 3 4 5
 S1: 1 2 3
 Resonance #9
 S0: 1 2 4 5

```

S1: 1 3 5
Resonance #10
S0: 1 2 4 5
S1: 1 3 4
Resonance #11
S0: 1 2 4 5
S1: 1 2 3
Resonance #12
S0: 1 3 4 5
S1: 1 2 4 5
Resonance #13
S0: 1 3 4 5
S1: 1 2 3 5
Resonance #14
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #15
S0: 1 2 4 5
S1: 1 3 4 5
Resonance #16
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #17
S0: 1 2 4 5
S1: 1 2 3 4
*****
The semigroup #63
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 4 4
1 1 1 4 4
has #17 resonances.
Resonance #1
S0: 1 4 5
S1: 1 2 3
Resonance #2
S0: 1 4 5
S1: 1 2 3 4
Resonance #3
S0: 1 3 4
S1: 1 2 4 5
Resonance #4
S0: 1 2 4
S1: 1 3 4 5
Resonance #5
S0: 1 3 4 5
S1: 1 2
Resonance #6
S0: 1 2 4 5
S1: 1 3
Resonance #7
S0: 1 3 4 5
S1: 1 2 4
Resonance #8
S0: 1 3 4 5
S1: 1 2 3

```

```

Resonance #9
S0: 1 2 4 5
S1: 1 3 4
Resonance #10
S0: 1 2 4 5
S1: 1 2 3
Resonance #11
S0: 1 2 3 4
S1: 1 4 5
Resonance #12
S0: 1 3 4 5
S1: 1 2 4 5
Resonance #13
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #14
S0: 1 2 4 5
S1: 1 3 4 5
Resonance #15
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #16
S0: 1 2 3 4
S1: 1 3 4 5
Resonance #17
S0: 1 2 3 4
S1: 1 2 4 5
*****

```

The semigroup #64

```

1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 4 4
1 1 1 4 5

```

has #12 resonances.

Resonance #1

```

S0: 1 4 5
S1: 1 2 3

```

Resonance #2

```

S0: 1 4 5
S1: 1 2 3 4

```

Resonance #3

```

S0: 1 3 4 5
S1: 1 2

```

Resonance #4

```

S0: 1 2 4 5
S1: 1 3

```

Resonance #5

```

S0: 1 3 4 5
S1: 1 2 4

```

Resonance #6

```

S0: 1 3 4 5
S1: 1 2 3

```

Resonance #7

```

S0: 1 2 4 5
S1: 1 3 4

```

Resonance #8

```

S0: 1 2 4 5
S1: 1 2 3
Resonance #9
S0: 1 3 4 5
S1: 1 2 4 5
Resonance #10
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #11
S0: 1 2 4 5
S1: 1 3 4 5
Resonance #12
S0: 1 2 4 5
S1: 1 2 3 4
*****
The semigroup #70
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 4 5
1 1 1 5 4
has #16 resonances.
Resonance #1
S0: 1 4
S1: 1 2 3 5
Resonance #2
S0: 1 4 5
S1: 1 2 3
Resonance #3
S0: 1 3 4
S1: 1 2 5
Resonance #4
S0: 1 2 4
S1: 1 3 5
Resonance #5
S0: 1 3 4
S1: 1 2 3 5
Resonance #6
S0: 1 2 4
S1: 1 2 3 5
Resonance #7
S0: 1 3 4 5
S1: 1 2
Resonance #8
S0: 1 2 4 5
S1: 1 3
Resonance #9
S0: 1 2 3 4
S1: 1 5
Resonance #10
S0: 1 3 4 5
S1: 1 2 3
Resonance #11
S0: 1 2 4 5
S1: 1 2 3
Resonance #12
S0: 1 2 3 4

```

```

S1: 1 3 5
Resonance #13
S0: 1 2 3 4
S1: 1 2 5
Resonance #14
S0: 1 3 4 5
S1: 1 2 4 5
Resonance #15
S0: 1 2 4 5
S1: 1 3 4 5
Resonance #16
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #116
1 1 1 1 1
1 1 1 1 1
1 1 1 1 1
1 1 1 1 2
1 1 1 1 2
1 1 2 2 1
has #15 resonances.
Resonance #1
S0: 1 5
S1: 1 2 3 4
Resonance #2
S0: 1 2
S1: 1 3 4 5
Resonance #3
S0: 1 3 4
S1: 1 2 5
Resonance #4
S0: 1 2 5
S1: 1 2 3 4
Resonance #5
S0: 1 2 4
S1: 1 2 3 5
Resonance #6
S0: 1 2 3
S1: 1 2 4 5
Resonance #7
S0: 1 2 4 5
S1: 1 2 3
Resonance #8
S0: 1 2 3 5
S1: 1 2 4
Resonance #9
S0: 1 2 3 4
S1: 1 2 5
Resonance #10
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #11
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #12
S0: 1 2 3 5
S1: 1 2 4 5

```

```

Resonance #13
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #14
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #15
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #117
1 1 1 1 1
1 1 1 1 1
1 1 1 1 2
1 1 1 1 2
1 1 2 2 2
has #13 resonances.
Resonance #1
S0: 1 2
S1: 1 3 4 5
Resonance #2
S0: 1 2 5
S1: 1 2 3 4
Resonance #3
S0: 1 2 4
S1: 1 2 3 5
Resonance #4
S0: 1 2 3
S1: 1 2 4 5
Resonance #5
S0: 1 2 4 5
S1: 1 2 3
Resonance #6
S0: 1 2 3 5
S1: 1 2 4
Resonance #7
S0: 1 2 3 4
S1: 1 2 5
Resonance #8
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #9
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #10
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #11
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #12
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #13
S0: 1 2 3 4
S1: 1 2 3 5
*****

```

The semigroup #118

1 1 1 1 1

1 1 1 1 1

1 1 1 1 2

1 1 1 1 2

1 1 2 2 3

has #7 resonances.

Resonance #1

S0: 1 3 4

S1: 1 2 5

Resonance #2

S0: 1 2 3

S1: 1 2 4 5

Resonance #3

S0: 1 2 3 5

S1: 1 2 4

Resonance #4

S0: 1 2 3 4

S1: 1 2 5

Resonance #5

S0: 1 2 3 5

S1: 1 2 3 4

Resonance #6

S0: 1 2 3 4

S1: 1 2 4 5

Resonance #7

S0: 1 2 3 4

S1: 1 2 3 5

The semigroup #119

1 1 1 1 1

1 1 1 1 1

1 1 1 1 2

1 1 1 2 1

1 1 2 1 1

has #15 resonances.

Resonance #1

S0: 1 2

S1: 1 3 4 5

Resonance #2

S0: 1 2 4

S1: 1 3 5

Resonance #3

S0: 1 2 5

S1: 1 2 3 4

Resonance #4

S0: 1 2 4

S1: 1 2 3 5

Resonance #5

S0: 1 2 3

S1: 1 2 4 5

Resonance #6

S0: 1 2 3 5

S1: 1 4

Resonance #7

S0: 1 2 4 5

S1: 1 2 3

```

Resonance #8
S0: 1 2 3 5
S1: 1 2 4
Resonance #9
S0: 1 2 3 4
S1: 1 2 5
Resonance #10
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #11
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #12
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #13
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #14
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #15
S0: 1 2 3 4
S1: 1 2 3 5

```

```

*****

```

```

The semigroup #120

```

```

1 1 1 1 1
1 1 1 1 1
1 1 1 1 2
1 1 1 2 1
1 1 2 1 2

```

```

has #15 resonances.

```

```

Resonance #1

```

```

S0: 1 2
S1: 1 3 4 5

```

```

Resonance #2

```

```

S0: 1 2 4
S1: 1 3 5

```

```

Resonance #3

```

```

S0: 1 2 5
S1: 1 2 3 4

```

```

Resonance #4

```

```

S0: 1 2 4
S1: 1 2 3 5

```

```

Resonance #5

```

```

S0: 1 2 3
S1: 1 2 4 5

```

```

Resonance #6

```

```

S0: 1 2 3 5
S1: 1 4

```

```

Resonance #7

```

```

S0: 1 2 4 5
S1: 1 2 3

```

```

Resonance #8

```

```

S0: 1 2 3 5
S1: 1 2 4

```

```

Resonance #9

```


S0: 1 2 3 4
 S1: 1 2 5
 Resonance #10
 S0: 1 2 4 5
 S1: 1 2 3 5
 Resonance #11
 S0: 1 2 4 5
 S1: 1 2 3 4
 Resonance #12
 S0: 1 2 3 5
 S1: 1 2 4 5
 Resonance #13
 S0: 1 2 3 5
 S1: 1 2 3 4
 Resonance #14
 S0: 1 2 3 4
 S1: 1 2 4 5
 Resonance #15
 S0: 1 2 3 4
 S1: 1 2 3 5

 The semigroup #121
 1 1 1 1 1
 1 1 1 1 1
 1 1 1 1 2
 1 1 1 2 1
 1 1 2 1 3

has #7 resonances.

Resonance #1

S0: 1 2 3

S1: 1 2 4 5

Resonance #2

S0: 1 2 3 5

S1: 1 4

Resonance #3

S0: 1 2 3 5

S1: 1 2 4

Resonance #4

S0: 1 2 3 4

S1: 1 2 5

Resonance #5

S0: 1 2 3 5

S1: 1 2 3 4

Resonance #6

S0: 1 2 3 4

S1: 1 2 4 5

Resonance #7

S0: 1 2 3 4

S1: 1 2 3 5

The semigroup #125

1 1 1 1 1

1 1 1 1 1

1 1 1 1 2

1 1 1 2 2

1 1 2 2 1

has #13 resonances.

```

Resonance #1
S0: 1 2
S1: 1 3 4 5
Resonance #2
S0: 1 2 5
S1: 1 2 3 4
Resonance #3
S0: 1 2 4
S1: 1 2 3 5
Resonance #4
S0: 1 2 3
S1: 1 2 4 5
Resonance #5
S0: 1 2 4 5
S1: 1 2 3
Resonance #6
S0: 1 2 3 5
S1: 1 2 4
Resonance #7
S0: 1 2 3 4
S1: 1 2 5
Resonance #8
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #9
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #10
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #11
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #12
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #13
S0: 1 2 3 4
S1: 1 2 3 5
*****

```

The semigroup #126

```

1 1 1 1 1
1 1 1 1 1
1 1 1 1 2
1 1 1 2 2
1 1 2 2 2

```

has #13 resonances.

Resonance #1

```

S0: 1 2
S1: 1 3 4 5

```

Resonance #2

```

S0: 1 2 5
S1: 1 2 3 4

```

Resonance #3

```

S0: 1 2 4
S1: 1 2 3 5

```

Resonance #4

```

S0: 1 2 3
S1: 1 2 4 5
Resonance #5
S0: 1 2 4 5
S1: 1 2 3
Resonance #6
S0: 1 2 3 5
S1: 1 2 4
Resonance #7
S0: 1 2 3 4
S1: 1 2 5
Resonance #8
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #9
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #10
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #11
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #12
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #13
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #127
1 1 1 1 1
1 1 1 1 1
1 1 1 1 2
1 1 1 2 2
1 1 2 2 3
has #6 resonances.
Resonance #1
S0: 1 2 3
S1: 1 2 4 5
Resonance #2
S0: 1 2 3 5
S1: 1 2 4
Resonance #3
S0: 1 2 3 4
S1: 1 2 5
Resonance #4
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #5
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #6
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #128

```

```

1 1 1 1 1
1 1 1 1 1
1 1 1 1 2
1 1 1 2 3
1 1 2 3 4
has #3 resonances.
Resonance #1
S0: 1 2 4
S1: 1 3 5
Resonance #2
S0: 1 2 4
S1: 1 2 3 5
Resonance #3
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #129
1 1 1 1 1
1 1 1 1 1
1 1 1 1 2
1 1 1 4 1
1 1 2 1 1
has #13 resonances.
Resonance #1
S0: 1 4 5
S1: 1 2 3
Resonance #2
S0: 1 3 4
S1: 1 2 5
Resonance #3
S0: 1 2 4
S1: 1 3 5
Resonance #4
S0: 1 4 5
S1: 1 2 3 4
Resonance #5
S0: 1 3 4
S1: 1 2 4 5
Resonance #6
S0: 1 2 4
S1: 1 3 4 5
Resonance #7
S0: 1 2 4
S1: 1 2 3 5
Resonance #8
S0: 1 2 4 5
S1: 1 2 3
Resonance #9
S0: 1 2 3 4
S1: 1 2 5
Resonance #10
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #11
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #12

```

```

S0: 1 2 3 4
S1: 1 2 4 5
Resonance #13
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #130
1 1 1 1 1
1 1 1 1 1
1 1 1 1 2
1 1 1 4 1
1 1 2 1 2
has #9 resonances.
Resonance #1
S0: 1 2 4
S1: 1 3 5
Resonance #2
S0: 1 2 4
S1: 1 3 4 5
Resonance #3
S0: 1 2 4
S1: 1 2 3 5
Resonance #4
S0: 1 2 4 5
S1: 1 2 3
Resonance #5
S0: 1 2 3 4
S1: 1 2 5
Resonance #6
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #7
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #8
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #9
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #131
1 1 1 1 1
1 1 1 1 1
1 1 1 1 2
1 1 1 4 1
1 1 2 1 3
has #5 resonances.
Resonance #1
S0: 1 3 4
S1: 1 2 5
Resonance #2
S0: 1 3 4
S1: 1 2 4 5
Resonance #3
S0: 1 2 3 4
S1: 1 2 5

```

```

Resonance #4
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #5
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #132
1 1 1 1 1
1 1 1 1 1
1 1 1 1 2
1 1 1 4 4
1 1 2 4 4
has #7 resonances.
Resonance #1
S0: 1 4 5
S1: 1 2 3
Resonance #2
S0: 1 4 5
S1: 1 2 3 4
Resonance #3
S0: 1 3 4
S1: 1 2 4 5
Resonance #4
S0: 1 2 4
S1: 1 3 4 5
Resonance #5
S0: 1 2 4 5
S1: 1 2 3
Resonance #6
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #7
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #157
1 1 1 1 1
1 1 1 1 1
1 1 1 1 3
1 1 1 1 3
1 1 3 3 5
has #11 resonances.
Resonance #1
S0: 1 5
S1: 1 2 3 4
Resonance #2
S0: 1 2 5
S1: 1 3 4
Resonance #3
S0: 1 3 5
S1: 1 2 3 4
Resonance #4
S0: 1 2 5
S1: 1 2 3 4
Resonance #5
S0: 1 3 4 5

```

```

S1: 1 2
Resonance #6
S0: 1 3 4 5
S1: 1 2 3
Resonance #7
S0: 1 2 3 5
S1: 1 3 4
Resonance #8
S0: 1 3 4 5
S1: 1 2 3 5
Resonance #9
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #10
S0: 1 2 3 5
S1: 1 3 4 5
Resonance #11
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #162
1 1 1 1 1
1 1 1 1 1
1 1 1 1 3
1 1 1 1 4
1 1 3 4 5
has #19 resonances.
Resonance #1
S0: 1 5
S1: 1 2 3 4
Resonance #2
S0: 1 4 5
S1: 1 2 3
Resonance #3
S0: 1 3 5
S1: 1 2 4
Resonance #4
S0: 1 2 5
S1: 1 3 4
Resonance #5
S0: 1 4 5
S1: 1 2 3 4
Resonance #6
S0: 1 3 5
S1: 1 2 3 4
Resonance #7
S0: 1 2 5
S1: 1 2 3 4
Resonance #8
S0: 1 3 4 5
S1: 1 2
Resonance #9
S0: 1 2 4 5
S1: 1 3
Resonance #10
S0: 1 2 3 5
S1: 1 4

```

```

Resonance #11
S0: 1 3 4 5
S1: 1 2 4
Resonance #12
S0: 1 3 4 5
S1: 1 2 3
Resonance #13
S0: 1 2 4 5
S1: 1 3 4
Resonance #14
S0: 1 2 4 5
S1: 1 2 3
Resonance #15
S0: 1 2 3 5
S1: 1 3 4
Resonance #16
S0: 1 2 3 5
S1: 1 2 4
Resonance #17
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #18
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #19
S0: 1 2 3 5
S1: 1 2 3 4
*****

```

The semigroup #166

```

1 1 1 1 1
1 1 1 1 1
1 1 1 1 3
1 1 1 2 1
1 1 3 1 5

```

has #10 resonances.

Resonance #1

```

S0: 1 2 5
S1: 1 3 4

```

Resonance #2

```

S0: 1 2 5
S1: 1 2 3 4

```

Resonance #3

```

S0: 1 2 4 5
S1: 1 3

```

Resonance #4

```

S0: 1 2 3 5
S1: 1 4

```

Resonance #5

```

S0: 1 2 4 5
S1: 1 2 3

```

Resonance #6

```

S0: 1 2 3 5
S1: 1 3 4

```

Resonance #7

```

S0: 1 2 3 5
S1: 1 2 4

```

Resonance #8


```

S0: 1 2 4 5
S1: 1 2 3 4
Resonance #9
S0: 1 2 3 5
S1: 1 3 4 5
Resonance #10
S0: 1 2 3 5
S1: 1 2 3 4
*****

```

The semigroup #167

```

1 1 1 1 1
1 1 1 1 1
1 1 1 1 3
1 1 1 2 3
1 1 3 3 5

```

has #5 resonances.

Resonance #1

```

S0: 1 2 5
S1: 1 3 4

```

Resonance #2

```

S0: 1 2 5
S1: 1 2 3 4

```

Resonance #3

```

S0: 1 2 3 5
S1: 1 3 4

```

Resonance #4

```

S0: 1 2 3 5
S1: 1 3 4 5

```

Resonance #5

```

S0: 1 2 3 5
S1: 1 2 3 4

```

The semigroup #168

```

1 1 1 1 1
1 1 1 1 1
1 1 1 1 3
1 1 1 3 4
1 1 3 4 5

```

has #9 resonances.

Resonance #1

```

S0: 1 3 5
S1: 1 2 4

```

Resonance #2

```

S0: 1 3 5
S1: 1 2 3 4

```

Resonance #3

```

S0: 1 3 4 5
S1: 1 2

```

Resonance #4

```

S0: 1 2 3 5
S1: 1 4

```

Resonance #5

```

S0: 1 3 4 5
S1: 1 2 3

```

Resonance #6

```

S0: 1 2 3 5
S1: 1 3 4

```

```

Resonance #7
S0: 1 2 3 5
S1: 1 2 4
Resonance #8
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #9
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #170
1 1 1 1 1
1 1 1 1 1
1 1 1 1 3
1 1 1 4 1
1 1 3 1 5
has #11 resonances.
Resonance #1
S0: 1 4 5
S1: 1 2 3
Resonance #2
S0: 1 4 5
S1: 1 2 3 4
Resonance #3
S0: 1 3 4 5
S1: 1 2
Resonance #4
S0: 1 2 4 5
S1: 1 3
Resonance #5
S0: 1 3 4 5
S1: 1 2 4
Resonance #6
S0: 1 3 4 5
S1: 1 2 3
Resonance #7
S0: 1 2 4 5
S1: 1 3 4
Resonance #8
S0: 1 2 4 5
S1: 1 2 3
Resonance #9
S0: 1 3 4 5
S1: 1 2 3 5
Resonance #10
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #11
S0: 1 2 4 5
S1: 1 2 3 4
*****
The semigroup #173
1 1 1 1 1
1 1 1 1 1
1 1 1 1 3
1 1 1 4 4
1 1 3 4 5

```

has #10 resonances.

Resonance #1

S0: 1 4 5

S1: 1 2 3

Resonance #2

S0: 1 4 5

S1: 1 2 3 4

Resonance #3

S0: 1 3 4 5

S1: 1 2

Resonance #4

S0: 1 2 4 5

S1: 1 3

Resonance #5

S0: 1 3 4 5

S1: 1 2 4

Resonance #6

S0: 1 3 4 5

S1: 1 2 3

Resonance #7

S0: 1 2 4 5

S1: 1 3 4

Resonance #8

S0: 1 2 4 5

S1: 1 2 3

Resonance #9

S0: 1 3 4 5

S1: 1 2 3 4

Resonance #10

S0: 1 2 4 5

S1: 1 2 3 4

The semigroup #199

1 1 1 1 1

1 1 1 1 1

1 1 1 2 2

1 1 2 1 2

1 1 2 2 1

has #13 resonances.

Resonance #1

S0: 1 2

S1: 1 3 4 5

Resonance #2

S0: 1 2 5

S1: 1 2 3 4

Resonance #3

S0: 1 2 4

S1: 1 2 3 5

Resonance #4

S0: 1 2 3

S1: 1 2 4 5

Resonance #5

S0: 1 2 4 5

S1: 1 2 3

Resonance #6

S0: 1 2 3 5

S1: 1 2 4

```

Resonance #7
S0: 1 2 3 4
S1: 1 2 5
Resonance #8
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #9
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #10
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #11
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #12
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #13
S0: 1 2 3 4
S1: 1 2 3 5
*****

```

The semigroup #200

```

1 1 1 1 1
1 1 1 1 1
1 1 1 2 2
1 1 2 1 2
1 1 2 2 2

```

has #13 resonances.

```

Resonance #1
S0: 1 2
S1: 1 3 4 5
Resonance #2
S0: 1 2 5
S1: 1 2 3 4
Resonance #3
S0: 1 2 4
S1: 1 2 3 5
Resonance #4
S0: 1 2 3
S1: 1 2 4 5
Resonance #5
S0: 1 2 4 5
S1: 1 2 3
Resonance #6
S0: 1 2 3 5
S1: 1 2 4
Resonance #7
S0: 1 2 3 4
S1: 1 2 5
Resonance #8
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #9
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #10

```

S0: 1 2 3 5
 S1: 1 2 4 5
 Resonance #11
 S0: 1 2 3 5
 S1: 1 2 3 4
 Resonance #12
 S0: 1 2 3 4
 S1: 1 2 4 5
 Resonance #13
 S0: 1 2 3 4
 S1: 1 2 3 5

The semigroup #201
 1 1 1 1 1
 1 1 1 1 1
 1 1 1 2 2
 1 1 2 2 1
 1 1 2 1 2
 has #13 resonances.

Resonance #1
 S0: 1 2
 S1: 1 3 4 5
 Resonance #2
 S0: 1 2 5
 S1: 1 2 3 4
 Resonance #3
 S0: 1 2 4
 S1: 1 2 3 5
 Resonance #4
 S0: 1 2 3
 S1: 1 2 4 5
 Resonance #5
 S0: 1 2 4 5
 S1: 1 2 3
 Resonance #6
 S0: 1 2 3 5
 S1: 1 2 4
 Resonance #7
 S0: 1 2 3 4
 S1: 1 2 5
 Resonance #8
 S0: 1 2 4 5
 S1: 1 2 3 5
 Resonance #9
 S0: 1 2 4 5
 S1: 1 2 3 4
 Resonance #10
 S0: 1 2 3 5
 S1: 1 2 4 5
 Resonance #11
 S0: 1 2 3 5
 S1: 1 2 3 4
 Resonance #12
 S0: 1 2 3 4
 S1: 1 2 4 5
 Resonance #13
 S0: 1 2 3 4

S1: 1 2 3 5

The semigroup #203

1 1 1 1 1
1 1 1 1 1
1 1 1 2 2
1 1 2 2 2
1 1 2 2 2

has #13 resonances.

Resonance #1

S0: 1 2

S1: 1 3 4 5

Resonance #2

S0: 1 2 5

S1: 1 2 3 4

Resonance #3

S0: 1 2 4

S1: 1 2 3 5

Resonance #4

S0: 1 2 3

S1: 1 2 4 5

Resonance #5

S0: 1 2 4 5

S1: 1 2 3

Resonance #6

S0: 1 2 3 5

S1: 1 2 4

Resonance #7

S0: 1 2 3 4

S1: 1 2 5

Resonance #8

S0: 1 2 4 5

S1: 1 2 3 5

Resonance #9

S0: 1 2 4 5

S1: 1 2 3 4

Resonance #10

S0: 1 2 3 5

S1: 1 2 4 5

Resonance #11

S0: 1 2 3 5

S1: 1 2 3 4

Resonance #12

S0: 1 2 3 4

S1: 1 2 4 5

Resonance #13

S0: 1 2 3 4

S1: 1 2 3 5

The semigroup #204

1 1 1 1 1
1 1 1 1 1
1 1 1 2 2
1 1 2 3 3
1 1 2 3 3

has #4 resonances.

Resonance #1

S0: 1 3
 S1: 1 2 4 5
 Resonance #2
 S0: 1 2 3
 S1: 1 2 4 5
 Resonance #3
 S0: 1 2 3 5
 S1: 1 2 3 4
 Resonance #4
 S0: 1 2 3 4
 S1: 1 2 3 5

The semigroup #207

1 1 1 1 1
 1 1 1 1 1
 1 1 1 3 3
 1 1 3 4 4
 1 1 3 4 4
 has #7 resonances.

Resonance #1

S0: 1 4 5
 S1: 1 2 3

Resonance #2

S0: 1 3 4 5
 S1: 1 2

Resonance #3

S0: 1 2 4 5
 S1: 1 3

Resonance #4

S0: 1 3 4 5
 S1: 1 2 3

Resonance #5

S0: 1 2 4 5
 S1: 1 2 3

Resonance #6

S0: 1 3 4 5
 S1: 1 2 3 4

Resonance #7

S0: 1 2 3 4
 S1: 1 3 4 5

The semigroup #208

1 1 1 1 1
 1 1 1 1 1
 1 1 1 3 3
 1 1 3 4 4
 1 1 3 4 5
 has #6 resonances.

Resonance #1

S0: 1 4 5
 S1: 1 2 3

Resonance #2

S0: 1 3 4 5
 S1: 1 2

Resonance #3

S0: 1 2 4 5
 S1: 1 3

```

Resonance #4
S0: 1 3 4 5
S1: 1 2 3
Resonance #5
S0: 1 2 4 5
S1: 1 2 3
Resonance #6
S0: 1 3 4 5
S1: 1 2 3 4
*****

```

The semigroup #211

```

1 1 1 1 1
1 1 1 1 1
1 1 1 3 3
1 1 3 4 5
1 1 3 5 4
has #8 resonances.

```

Resonance #1

```

S0: 1 4 5
S1: 1 2 3

```

Resonance #2

```

S0: 1 3 4
S1: 1 2 3 5

```

Resonance #3

```

S0: 1 3 4 5
S1: 1 2

```

Resonance #4

```

S0: 1 2 4 5
S1: 1 3

```

Resonance #5

```

S0: 1 3 4 5
S1: 1 2 3

```

Resonance #6

```

S0: 1 2 4 5
S1: 1 2 3

```

Resonance #7

```

S0: 1 2 3 4
S1: 1 3 5

```

Resonance #8

```

S0: 1 2 3 4
S1: 1 2 3 5

```

The semigroup #222

```

1 1 1 1 1
1 1 1 1 1
1 1 2 1 1
1 1 1 2 1
1 1 1 1 2
has #19 resonances.

```

Resonance #1

```

S0: 1 2
S1: 1 3 4 5

```

Resonance #2

```

S0: 1 2 5
S1: 1 3 4

```

Resonance #3

```

S0: 1 2 4

```



```

S1: 1 3 5
Resonance #4
S0: 1 2 3
S1: 1 4 5
Resonance #5
S0: 1 2 5
S1: 1 2 3 4
Resonance #6
S0: 1 2 4
S1: 1 2 3 5
Resonance #7
S0: 1 2 3
S1: 1 2 4 5
Resonance #8
S0: 1 2 4 5
S1: 1 3
Resonance #9
S0: 1 2 3 5
S1: 1 4
Resonance #10
S0: 1 2 3 4
S1: 1 5
Resonance #11
S0: 1 2 4 5
S1: 1 2 3
Resonance #12
S0: 1 2 3 5
S1: 1 2 4
Resonance #13
S0: 1 2 3 4
S1: 1 2 5
Resonance #14
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #15
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #16
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #17
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #18
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #19
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #223
1 1 1 1 1
1 1 1 1 1
1 1 2 1 1
1 1 1 2 1
1 1 1 1 5
has #13 resonances.

```

```

Resonance #1
S0: 1 2 5
S1: 1 3 4
Resonance #2
S0: 1 2 5
S1: 1 3 4 5
Resonance #3
S0: 1 2 5
S1: 1 2 3 4
Resonance #4
S0: 1 2 4 5
S1: 1 3
Resonance #5
S0: 1 2 3 5
S1: 1 4
Resonance #6
S0: 1 2 4 5
S1: 1 3 5
Resonance #7
S0: 1 2 4 5
S1: 1 2 3
Resonance #8
S0: 1 2 3 5
S1: 1 4 5
Resonance #9
S0: 1 2 3 5
S1: 1 2 4
Resonance #10
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #11
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #12
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #13
S0: 1 2 3 5
S1: 1 2 3 4
*****

```

The semigroup #227

```

1 1 1 1 1
1 1 1 1 1
1 1 2 1 1
1 1 1 2 2
1 1 1 2 2

```

has #15 resonances.

Resonance #1

```

S0: 1 2
S1: 1 3 4 5

```

Resonance #2

```

S0: 1 2 3
S1: 1 4 5

```

Resonance #3

```

S0: 1 2 5
S1: 1 2 3 4

```

Resonance #4

S0: 1 2 4
 S1: 1 2 3 5
 Resonance #5
 S0: 1 2 3
 S1: 1 2 4 5
 Resonance #6
 S0: 1 2 4 5
 S1: 1 3
 Resonance #7
 S0: 1 2 4 5
 S1: 1 2 3
 Resonance #8
 S0: 1 2 3 5
 S1: 1 2 4
 Resonance #9
 S0: 1 2 3 4
 S1: 1 2 5
 Resonance #10
 S0: 1 2 4 5
 S1: 1 2 3 5
 Resonance #11
 S0: 1 2 4 5
 S1: 1 2 3 4
 Resonance #12
 S0: 1 2 3 5
 S1: 1 2 4 5
 Resonance #13
 S0: 1 2 3 5
 S1: 1 2 3 4
 Resonance #14
 S0: 1 2 3 4
 S1: 1 2 4 5
 Resonance #15
 S0: 1 2 3 4
 S1: 1 2 3 5

The semigroup #230

1 1 1 1 1
 1 1 1 1 1
 1 1 2 1 1
 1 1 1 4 1
 1 1 1 1 5

has #7 resonances.

Resonance #1

S0: 1 2 4 5
 S1: 1 3

Resonance #2

S0: 1 2 4 5
 S1: 1 3 5

Resonance #3

S0: 1 2 4 5
 S1: 1 3 4

Resonance #4

S0: 1 2 4 5
 S1: 1 2 3

Resonance #5

S0: 1 2 4 5

S1: 1 3 4 5
 Resonance #6
 S0: 1 2 4 5
 S1: 1 2 3 5
 Resonance #7
 S0: 1 2 4 5
 S1: 1 2 3 4

The semigroup #233

1 1 1 1 1
 1 1 1 1 1
 1 1 2 1 1
 1 1 1 4 4
 1 1 1 4 4

has #8 resonances.

Resonance #1

S0: 1 2 4

S1: 1 3 4 5

Resonance #2

S0: 1 2 4 5

S1: 1 3

Resonance #3

S0: 1 2 4 5

S1: 1 3 4

Resonance #4

S0: 1 2 4 5

S1: 1 2 3

Resonance #5

S0: 1 2 3 4

S1: 1 4 5

Resonance #6

S0: 1 2 4 5

S1: 1 3 4 5

Resonance #7

S0: 1 2 4 5

S1: 1 2 3 4

Resonance #8

S0: 1 2 3 4

S1: 1 2 4 5

The semigroup #234

1 1 1 1 1
 1 1 1 1 1
 1 1 2 1 1
 1 1 1 4 4
 1 1 1 4 5

has #5 resonances.

Resonance #1

S0: 1 2 4 5

S1: 1 3

Resonance #2

S0: 1 2 4 5

S1: 1 3 4

Resonance #3

S0: 1 2 4 5

S1: 1 2 3

Resonance #4

```

S0: 1 2 4 5
S1: 1 3 4 5
Resonance #5
S0: 1 2 4 5
S1: 1 2 3 4
*****
The semigroup #237
1 1 1 1 1
1 1 1 1 1
1 1 2 1 1
1 1 1 4 5
1 1 1 5 4
has #8 resonances.
Resonance #1
S0: 1 2 4
S1: 1 3 5
Resonance #2
S0: 1 2 4
S1: 1 2 3 5
Resonance #3
S0: 1 2 4 5
S1: 1 3
Resonance #4
S0: 1 2 3 4
S1: 1 5
Resonance #5
S0: 1 2 4 5
S1: 1 2 3
Resonance #6
S0: 1 2 3 4
S1: 1 2 5
Resonance #7
S0: 1 2 4 5
S1: 1 3 4 5
Resonance #8
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #245
1 1 1 1 1
1 1 1 1 1
1 1 2 1 2
1 1 1 2 2
1 1 2 2 2
has #13 resonances.
Resonance #1
S0: 1 2
S1: 1 3 4 5
Resonance #2
S0: 1 2 5
S1: 1 2 3 4
Resonance #3
S0: 1 2 4
S1: 1 2 3 5
Resonance #4
S0: 1 2 3
S1: 1 2 4 5

```

```

Resonance #5
S0: 1 2 4 5
S1: 1 2 3
Resonance #6
S0: 1 2 3 5
S1: 1 2 4
Resonance #7
S0: 1 2 3 4
S1: 1 2 5
Resonance #8
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #9
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #10
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #11
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #12
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #13
S0: 1 2 3 4
S1: 1 2 3 5
*****

```

The semigroup #246

```

1 1 1 1 1
1 1 1 1 1
1 1 2 1 2
1 1 1 4 1
1 1 2 1 2

```

has #9 resonances.

Resonance #1

```

S0: 1 2 4
S1: 1 3 5

```

Resonance #2

```

S0: 1 2 4
S1: 1 3 4 5

```

Resonance #3

```

S0: 1 2 4
S1: 1 2 3 5

```

Resonance #4

```

S0: 1 2 4 5
S1: 1 2 3

```

Resonance #5

```

S0: 1 2 3 4
S1: 1 2 5

```

Resonance #6

```

S0: 1 2 4 5
S1: 1 2 3 5

```

Resonance #7

```

S0: 1 2 4 5
S1: 1 2 3 4

```

Resonance #8

```

S0: 1 2 3 4
S1: 1 2 4 5
Resonance #9
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #247
1 1 1 1 1
1 1 1 1 1
1 1 2 1 2
1 1 1 4 4
1 1 2 4 4
has #4 resonances.
Resonance #1
S0: 1 2 4
S1: 1 3 4 5
Resonance #2
S0: 1 2 4 5
S1: 1 2 3
Resonance #3
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #4
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #254
1 1 1 1 1
1 1 1 1 1
1 1 2 2 2
1 1 2 2 2
1 1 2 2 2
has #13 resonances.
Resonance #1
S0: 1 2
S1: 1 3 4 5
Resonance #2
S0: 1 2 5
S1: 1 2 3 4
Resonance #3
S0: 1 2 4
S1: 1 2 3 5
Resonance #4
S0: 1 2 3
S1: 1 2 4 5
Resonance #5
S0: 1 2 4 5
S1: 1 2 3
Resonance #6
S0: 1 2 3 5
S1: 1 2 4
Resonance #7
S0: 1 2 3 4
S1: 1 2 5
Resonance #8
S0: 1 2 4 5
S1: 1 2 3 5

```

```

Resonance #9
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #10
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #11
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #12
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #13
S0: 1 2 3 4
S1: 1 2 3 5
*****

```

The semigroup #255

```

1 1 1 1 1
1 1 1 1 1
1 1 3 1 1
1 1 1 4 1
1 1 1 1 5
has #7 resonances.

```

Resonance #1

```

S0: 1 3 4 5
S1: 1 2

```

Resonance #2

```

S0: 1 3 4 5
S1: 1 2 5

```

Resonance #3

```

S0: 1 3 4 5
S1: 1 2 4

```

Resonance #4

```

S0: 1 3 4 5
S1: 1 2 3

```

Resonance #5

```

S0: 1 3 4 5
S1: 1 2 4 5

```

Resonance #6

```

S0: 1 3 4 5
S1: 1 2 3 5

```

Resonance #7

```

S0: 1 3 4 5
S1: 1 2 3 4

```

The semigroup #258

```

1 1 1 1 1
1 1 1 1 1
1 1 3 1 1
1 1 1 4 4
1 1 1 4 4
has #9 resonances.

```

Resonance #1

```

S0: 1 3 4
S1: 1 2 4 5

```

Resonance #2

```

S0: 1 3 4 5

```



```

S1: 1 2
Resonance #3
S0: 1 3 4 5
S1: 1 2 4
Resonance #4
S0: 1 3 4 5
S1: 1 2 3
Resonance #5
S0: 1 2 3 4
S1: 1 4 5
Resonance #6
S0: 1 3 4 5
S1: 1 2 4 5
Resonance #7
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #8
S0: 1 2 3 4
S1: 1 3 4 5
Resonance #9
S0: 1 2 3 4
S1: 1 2 4 5

```

The semigroup #259

```

1 1 1 1 1
1 1 1 1 1
1 1 3 1 1
1 1 1 4 4
1 1 1 4 5

```

has #5 resonances.

Resonance #1

```

S0: 1 3 4 5
S1: 1 2

```

Resonance #2

```

S0: 1 3 4 5
S1: 1 2 4

```

Resonance #3

```

S0: 1 3 4 5
S1: 1 2 3

```

Resonance #4

```

S0: 1 3 4 5
S1: 1 2 4 5

```

Resonance #5

```

S0: 1 3 4 5
S1: 1 2 3 4

```

The semigroup #262

```

1 1 1 1 1
1 1 1 1 1
1 1 3 1 1
1 1 1 4 5
1 1 1 5 4

```

has #9 resonances.

Resonance #1

```

S0: 1 3 4
S1: 1 2 5

```

Resonance #2

S0: 1 3 4
 S1: 1 2 3 5
 Resonance #3
 S0: 1 3 4 5
 S1: 1 2
 Resonance #4
 S0: 1 2 3 4
 S1: 1 5
 Resonance #5
 S0: 1 3 4 5
 S1: 1 2 3
 Resonance #6
 S0: 1 2 3 4
 S1: 1 3 5
 Resonance #7
 S0: 1 2 3 4
 S1: 1 2 5
 Resonance #8
 S0: 1 3 4 5
 S1: 1 2 4 5
 Resonance #9
 S0: 1 2 3 4
 S1: 1 2 3 5

The semigroup #275

1 1 1 1 1
 1 1 1 1 1
 1 1 3 1 3
 1 1 1 4 4
 1 1 3 4 5

has #4 resonances.

Resonance #1

S0: 1 3 4 5
 S1: 1 2

Resonance #2

S0: 1 3 4 5
 S1: 1 2 4

Resonance #3

S0: 1 3 4 5
 S1: 1 2 3

Resonance #4

S0: 1 3 4 5
 S1: 1 2 3 4

The semigroup #295

1 1 1 1 1
 1 1 1 1 1
 1 1 3 3 3
 1 1 3 3 3
 1 1 3 3 3

has #13 resonances.

Resonance #1

S0: 1 3 5
 S1: 1 2 3 4

Resonance #2

S0: 1 3 4
 S1: 1 2 3 5

```

Resonance #3
S0: 1 2 3
S1: 1 3 4 5
Resonance #4
S0: 1 3 4 5
S1: 1 2
Resonance #5
S0: 1 3 4 5
S1: 1 2 3
Resonance #6
S0: 1 2 3 5
S1: 1 3 4
Resonance #7
S0: 1 2 3 4
S1: 1 3 5
Resonance #8
S0: 1 3 4 5
S1: 1 2 3 5
Resonance #9
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #10
S0: 1 2 3 5
S1: 1 3 4 5
Resonance #11
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #12
S0: 1 2 3 4
S1: 1 3 4 5
Resonance #13
S0: 1 2 3 4
S1: 1 2 3 5
*****

```

The semigroup #296

```

1 1 1 1 1
1 1 1 1 1
1 1 3 3 3
1 1 3 3 3
1 1 3 3 4

```

has #7 resonances.

```

Resonance #1
S0: 1 3 4
S1: 1 2 3 5
Resonance #2
S0: 1 3 4 5
S1: 1 2
Resonance #3
S0: 1 3 4 5
S1: 1 2 3
Resonance #4
S0: 1 2 3 4
S1: 1 3 5
Resonance #5
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #6

```

```

S0: 1 2 3 4
S1: 1 3 4 5
Resonance #7
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #297
1 1 1 1 1
1 1 1 1 1
1 1 3 3 3
1 1 3 3 3
1 1 3 3 5
has #8 resonances.
Resonance #1
S0: 1 3 5
S1: 1 2 3 4
Resonance #2
S0: 1 3 4 5
S1: 1 2
Resonance #3
S0: 1 3 4 5
S1: 1 2 3
Resonance #4
S0: 1 2 3 5
S1: 1 3 4
Resonance #5
S0: 1 3 4 5
S1: 1 2 3 5
Resonance #6
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #7
S0: 1 2 3 5
S1: 1 3 4 5
Resonance #8
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #302
1 1 1 1 1
1 1 1 1 1
1 1 3 3 3
1 1 3 3 4
1 1 3 4 5
has #6 resonances.
Resonance #1
S0: 1 3 5
S1: 1 2 3 4
Resonance #2
S0: 1 3 4 5
S1: 1 2
Resonance #3
S0: 1 3 4 5
S1: 1 2 3
Resonance #4
S0: 1 2 3 5
S1: 1 3 4

```

```

Resonance #5
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #6
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #305
1 1 1 1 1
1 1 1 1 1
1 1 3 3 3
1 1 3 4 3
1 1 3 3 5
has #4 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 3 4 5
S1: 1 2 3
Resonance #3
S0: 1 3 4 5
S1: 1 2 3 5
Resonance #4
S0: 1 3 4 5
S1: 1 2 3 4
*****
The semigroup #308
1 1 1 1 1
1 1 1 1 1
1 1 3 3 3
1 1 3 4 4
1 1 3 4 4
has #4 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 3 4 5
S1: 1 2 3
Resonance #3
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #4
S0: 1 2 3 4
S1: 1 3 4 5
*****
The semigroup #309
1 1 1 1 1
1 1 1 1 1
1 1 3 3 3
1 1 3 4 4
1 1 3 4 5
has #3 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2

```

```

Resonance #2
S0: 1 3 4 5
S1: 1 2 3
Resonance #3
S0: 1 3 4 5
S1: 1 2 3 4
*****
The semigroup #312
1 1 1 1 1
1 1 1 1 1
1 1 3 3 3
1 1 3 4 5
1 1 3 5 4
has #5 resonances.
Resonance #1
S0: 1 3 4
S1: 1 2 3 5
Resonance #2
S0: 1 3 4 5
S1: 1 2
Resonance #3
S0: 1 3 4 5
S1: 1 2 3
Resonance #4
S0: 1 2 3 4
S1: 1 3 5
Resonance #5
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #322
1 1 1 1 1
1 1 1 1 1
1 1 3 3 5
1 1 3 3 5
1 1 5 5 3
has #6 resonances.
Resonance #1
S0: 1 3 4
S1: 1 2 5
Resonance #2
S0: 1 3 4 5
S1: 1 2
Resonance #3
S0: 1 2 3 4
S1: 1 5
Resonance #4
S0: 1 2 3 4
S1: 1 2 5
Resonance #5
S0: 1 3 4 5
S1: 1 2 3 5
Resonance #6
S0: 1 2 3 5
S1: 1 3 4 5
*****
The semigroup #324

```

```

1 1 1 1 1
1 1 1 1 1
1 1 3 3 5
1 1 3 4 5
1 1 5 5 3
has #5 resonances.
Resonance #1
S0: 1 3 4
S1: 1 2 5
Resonance #2
S0: 1 3 4 5
S1: 1 2
Resonance #3
S0: 1 2 3 4
S1: 1 5
Resonance #4
S0: 1 2 3 4
S1: 1 2 5
Resonance #5
S0: 1 3 4 5
S1: 1 2 3 5
*****
The semigroup #331
1 1 1 1 1
1 1 1 1 1
1 1 3 4 4
1 1 4 3 3
1 1 4 3 3
has #6 resonances.
Resonance #1
S0: 1 3
S1: 1 2 4 5
Resonance #2
S0: 1 2 3
S1: 1 4 5
Resonance #3
S0: 1 2 3
S1: 1 2 4 5
Resonance #4
S0: 1 3 4 5
S1: 1 2
Resonance #5
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #6
S0: 1 2 3 4
S1: 1 3 4 5
*****
The semigroup #338
1 1 1 1 1
1 1 1 1 1
1 1 3 4 5
1 1 4 5 3
1 1 5 3 4
has #1 resonances.
Resonance #1
S0: 1 3 4 5

```

```

S1: 1 2
*****
The semigroup #406
1 1 1 1 1
1 1 1 1 2
1 1 1 1 2
1 1 1 1 2
1 2 2 2 5
has #8 resonances.
Resonance #1
S0: 1 5
S1: 1 2 3 4
Resonance #2
S0: 1 2 5
S1: 1 2 3 4
Resonance #3
S0: 1 2 4 5
S1: 1 2 3
Resonance #4
S0: 1 2 3 5
S1: 1 2 4
Resonance #5
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #6
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #7
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #8
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #410
1 1 1 1 1
1 1 1 1 2
1 1 1 1 2
1 1 1 1 4
1 2 2 4 5
has #9 resonances.
Resonance #1
S0: 1 5
S1: 1 2 3 4
Resonance #2
S0: 1 4 5
S1: 1 2 3
Resonance #3
S0: 1 4 5
S1: 1 2 3 4
Resonance #4
S0: 1 2 5
S1: 1 2 3 4
Resonance #5
S0: 1 2 3 5
S1: 1 4
Resonance #6

```


S0: 1 2 4 5
 S1: 1 2 3
 Resonance #7
 S0: 1 2 3 5
 S1: 1 2 4
 Resonance #8
 S0: 1 2 4 5
 S1: 1 2 3 4
 Resonance #9
 S0: 1 2 3 5
 S1: 1 2 3 4

The semigroup #413

1 1 1 1 1
 1 1 1 1 2
 1 1 1 1 2
 1 1 1 2 4
 1 2 2 4 5
 has #6 resonances.

Resonance #1

S0: 1 2 5
 S1: 1 2 3 4

Resonance #2

S0: 1 2 3 5
 S1: 1 4

Resonance #3

S0: 1 2 4 5
 S1: 1 2 3

Resonance #4

S0: 1 2 3 5
 S1: 1 2 4

Resonance #5

S0: 1 2 4 5
 S1: 1 2 3 4

Resonance #6

S0: 1 2 3 5
 S1: 1 2 3 4

The semigroup #415

1 1 1 1 1
 1 1 1 1 2
 1 1 1 1 2
 1 1 1 4 1
 1 2 2 1 5
 has #5 resonances.

Resonance #1

S0: 1 4 5
 S1: 1 2 3

Resonance #2

S0: 1 4 5
 S1: 1 2 3 4

Resonance #3

S0: 1 2 4 5
 S1: 1 2 3

Resonance #4

S0: 1 2 4 5
 S1: 1 2 3 5

```

Resonance #5
S0: 1 2 4 5
S1: 1 2 3 4
*****
The semigroup #417
1 1 1 1 1
1 1 1 1 2
1 1 1 1 2
1 1 1 4 4
1 2 2 4 5
has #4 resonances.
Resonance #1
S0: 1 4 5
S1: 1 2 3
Resonance #2
S0: 1 4 5
S1: 1 2 3 4
Resonance #3
S0: 1 2 4 5
S1: 1 2 3
Resonance #4
S0: 1 2 4 5
S1: 1 2 3 4
*****
The semigroup #433
1 1 1 1 1
1 1 1 1 2
1 1 1 1 3
1 1 1 1 4
1 2 3 4 5
has #19 resonances.
Resonance #1
S0: 1 5
S1: 1 2 3 4
Resonance #2
S0: 1 4 5
S1: 1 2 3
Resonance #3
S0: 1 3 5
S1: 1 2 4
Resonance #4
S0: 1 2 5
S1: 1 3 4
Resonance #5
S0: 1 4 5
S1: 1 2 3 4
Resonance #6
S0: 1 3 5
S1: 1 2 3 4
Resonance #7
S0: 1 2 5
S1: 1 2 3 4
Resonance #8
S0: 1 3 4 5
S1: 1 2
Resonance #9
S0: 1 2 4 5

```

```

S1: 1 3
Resonance #10
S0: 1 2 3 5
S1: 1 4
Resonance #11
S0: 1 3 4 5
S1: 1 2 4
Resonance #12
S0: 1 3 4 5
S1: 1 2 3
Resonance #13
S0: 1 2 4 5
S1: 1 3 4
Resonance #14
S0: 1 2 4 5
S1: 1 2 3
Resonance #15
S0: 1 2 3 5
S1: 1 3 4
Resonance #16
S0: 1 2 3 5
S1: 1 2 4
Resonance #17
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #18
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #19
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #434
1 1 1 1 1
1 1 1 1 2
1 1 1 1 3
1 1 1 2 4
1 2 3 4 5
has #9 resonances.
Resonance #1
S0: 1 2 5
S1: 1 3 4
Resonance #2
S0: 1 2 5
S1: 1 2 3 4
Resonance #3
S0: 1 2 4 5
S1: 1 3
Resonance #4
S0: 1 2 3 5
S1: 1 4
Resonance #5
S0: 1 2 4 5
S1: 1 2 3
Resonance #6
S0: 1 2 3 5
S1: 1 3 4

```

```

Resonance #7
S0: 1 2 3 5
S1: 1 2 4
Resonance #8
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #9
S0: 1 2 3 5
S1: 1 2 3 4
*****

```

The semigroup #435

```

1 1 1 1 1
1 1 1 1 2
1 1 1 1 3
1 1 1 4 1
1 2 3 1 5

```

has #10 resonances.

Resonance #1

```

S0: 1 4 5
S1: 1 2 3

```

Resonance #2

```

S0: 1 4 5
S1: 1 2 3 4

```

Resonance #3

```

S0: 1 3 4 5
S1: 1 2

```

Resonance #4

```

S0: 1 2 4 5
S1: 1 3

```

Resonance #5

```

S0: 1 3 4 5
S1: 1 2 4

```

Resonance #6

```

S0: 1 3 4 5
S1: 1 2 3

```

Resonance #7

```

S0: 1 2 4 5
S1: 1 3 4

```

Resonance #8

```

S0: 1 2 4 5
S1: 1 2 3

```

Resonance #9

```

S0: 1 3 4 5
S1: 1 2 3 4

```

Resonance #10

```

S0: 1 2 4 5
S1: 1 2 3 4

```

The semigroup #436

```

1 1 1 1 1
1 1 1 1 2
1 1 1 1 3
1 1 1 4 4
1 2 3 4 5

```

has #10 resonances.

Resonance #1

```

S0: 1 4 5

```

```

S1: 1 2 3
Resonance #2
S0: 1 4 5
S1: 1 2 3 4
Resonance #3
S0: 1 3 4 5
S1: 1 2
Resonance #4
S0: 1 2 4 5
S1: 1 3
Resonance #5
S0: 1 3 4 5
S1: 1 2 4
Resonance #6
S0: 1 3 4 5
S1: 1 2 3
Resonance #7
S0: 1 2 4 5
S1: 1 3 4
Resonance #8
S0: 1 2 4 5
S1: 1 2 3
Resonance #9
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #10
S0: 1 2 4 5
S1: 1 2 3 4
*****

```

The semigroup #459

```

1 1 1 1 1
1 1 1 1 2
1 1 1 2 3
1 1 2 1 4
1 2 3 4 5

```

has #8 resonances.

Resonance #1

```

S0: 1 4 5
S1: 1 2 3

```

Resonance #2

```

S0: 1 3 5
S1: 1 2 4

```

Resonance #3

```

S0: 1 2 5
S1: 1 3 4

```

Resonance #4

```

S0: 1 2 5
S1: 1 2 3 4

```

Resonance #5

```

S0: 1 2 4 5
S1: 1 2 3

```

Resonance #6

```

S0: 1 2 3 5
S1: 1 2 4

```

Resonance #7

```

S0: 1 2 4 5
S1: 1 2 3 4

```

```

Resonance #8
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #460
1 1 1 1 1
1 1 1 1 2
1 1 1 2 3
1 1 2 2 4
1 2 3 4 5
has #6 resonances.
Resonance #1
S0: 1 2 5
S1: 1 3 4
Resonance #2
S0: 1 2 5
S1: 1 2 3 4
Resonance #3
S0: 1 2 4 5
S1: 1 2 3
Resonance #4
S0: 1 2 3 5
S1: 1 2 4
Resonance #5
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #6
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #461
1 1 1 1 1
1 1 1 1 2
1 1 1 2 3
1 1 2 3 4
1 2 3 4 5
has #3 resonances.
Resonance #1
S0: 1 3 5
S1: 1 2 4
Resonance #2
S0: 1 2 3 5
S1: 1 2 4
Resonance #3
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #462
1 1 1 1 1
1 1 1 1 2
1 1 1 3 1
1 1 3 4 1
1 2 1 1 5
has #7 resonances.
Resonance #1
S0: 1 4 5
S1: 1 2 3

```

```

Resonance #2
S0: 1 3 4 5
S1: 1 2
Resonance #3
S0: 1 2 4 5
S1: 1 3
Resonance #4
S0: 1 3 4 5
S1: 1 2 3
Resonance #5
S0: 1 2 4 5
S1: 1 2 3
Resonance #6
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #7
S0: 1 2 4 5
S1: 1 2 3 5
*****
The semigroup #466
1 1 1 1 1
1 1 1 1 2
1 1 1 3 3
1 1 3 4 4
1 2 3 4 5
has #6 resonances.
Resonance #1
S0: 1 4 5
S1: 1 2 3
Resonance #2
S0: 1 3 4 5
S1: 1 2
Resonance #3
S0: 1 2 4 5
S1: 1 3
Resonance #4
S0: 1 3 4 5
S1: 1 2 3
Resonance #5
S0: 1 2 4 5
S1: 1 2 3
Resonance #6
S0: 1 3 4 5
S1: 1 2 3 4
*****
The semigroup #469
1 1 1 1 1
1 1 1 1 2
1 1 2 1 3
1 1 1 2 4
1 2 3 4 5
has #8 resonances.
Resonance #1
S0: 1 2 5
S1: 1 3 4
Resonance #2
S0: 1 2 5

```

S1: 1 2 3 4
 Resonance #3
 S0: 1 2 4 5
 S1: 1 3
 Resonance #4
 S0: 1 2 3 5
 S1: 1 4
 Resonance #5
 S0: 1 2 4 5
 S1: 1 2 3
 Resonance #6
 S0: 1 2 3 5
 S1: 1 2 4
 Resonance #7
 S0: 1 2 4 5
 S1: 1 2 3 4
 Resonance #8
 S0: 1 2 3 5
 S1: 1 2 3 4

The semigroup #470

1 1 1 1 1
 1 1 1 1 2
 1 1 2 1 3
 1 1 1 4 1
 1 2 3 1 5

has #4 resonances.

Resonance #1

S0: 1 2 4 5

S1: 1 3

Resonance #2

S0: 1 2 4 5

S1: 1 3 4

Resonance #3

S0: 1 2 4 5

S1: 1 2 3

Resonance #4

S0: 1 2 4 5

S1: 1 2 3 4

The semigroup #471

1 1 1 1 1
 1 1 1 1 2
 1 1 2 1 3
 1 1 1 4 4
 1 2 3 4 5

has #4 resonances.

Resonance #1

S0: 1 2 4 5

S1: 1 3

Resonance #2

S0: 1 2 4 5

S1: 1 3 4

Resonance #3

S0: 1 2 4 5

S1: 1 2 3

Resonance #4


```

S0: 1 2 4 5
S1: 1 2 3 4
*****
The semigroup #475
1 1 1 1 1
1 1 1 1 2
1 1 2 2 3
1 1 2 2 3
1 2 3 3 5
has #3 resonances.
Resonance #1
S0: 1 2 5
S1: 1 3 4
Resonance #2
S0: 1 2 5
S1: 1 2 3 4
Resonance #3
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #477
1 1 1 1 1
1 1 1 1 2
1 1 2 2 3
1 1 2 2 4
1 2 3 4 5
has #6 resonances.
Resonance #1
S0: 1 2 5
S1: 1 3 4
Resonance #2
S0: 1 2 5
S1: 1 2 3 4
Resonance #3
S0: 1 2 4 5
S1: 1 2 3
Resonance #4
S0: 1 2 3 5
S1: 1 2 4
Resonance #5
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #6
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #478
1 1 1 1 1
1 1 1 1 2
1 1 3 1 1
1 1 1 4 1
1 2 1 1 5
has #4 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2

```

```

S0: 1 3 4 5
S1: 1 2 4
Resonance #3
S0: 1 3 4 5
S1: 1 2 3
Resonance #4
S0: 1 3 4 5
S1: 1 2 3 4
*****
The semigroup #479
1 1 1 1 1
1 1 1 1 2
1 1 3 1 1
1 1 1 4 4
1 2 1 4 5
has #4 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 3 4 5
S1: 1 2 4
Resonance #3
S0: 1 3 4 5
S1: 1 2 3
Resonance #4
S0: 1 3 4 5
S1: 1 2 3 4
*****
The semigroup #488
1 1 1 1 1
1 1 1 1 2
1 1 3 1 3
1 1 1 4 4
1 2 3 4 5
has #4 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 3 4 5
S1: 1 2 4
Resonance #3
S0: 1 3 4 5
S1: 1 2 3
Resonance #4
S0: 1 3 4 5
S1: 1 2 3 4
*****
The semigroup #496
1 1 1 1 1
1 1 1 1 2
1 1 3 3 1
1 1 3 3 1
1 2 1 1 5
has #6 resonances.
Resonance #1

```

```

S0: 1 3 5
S1: 1 2 3 4
Resonance #2
S0: 1 3 4 5
S1: 1 2
Resonance #3
S0: 1 3 4 5
S1: 1 2 3
Resonance #4
S0: 1 2 3 5
S1: 1 3 4
Resonance #5
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #6
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #497
1 1 1 1 1
1 1 1 1 2
1 1 3 3 1
1 1 3 3 2
1 2 1 2 5
has #2 resonances.
Resonance #1
S0: 1 3 5
S1: 1 2 3 4
Resonance #2
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #498
1 1 1 1 1
1 1 1 1 2
1 1 3 3 1
1 1 3 4 1
1 2 1 1 5
has #3 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 3 4 5
S1: 1 2 3
Resonance #3
S0: 1 3 4 5
S1: 1 2 3 4
*****
The semigroup #500
1 1 1 1 1
1 1 1 1 2
1 1 3 3 3
1 1 3 3 3
1 2 3 3 5
has #6 resonances.
Resonance #1

```

```

S0: 1 3 5
S1: 1 2 3 4
Resonance #2
S0: 1 3 4 5
S1: 1 2
Resonance #3
S0: 1 3 4 5
S1: 1 2 3
Resonance #4
S0: 1 2 3 5
S1: 1 3 4
Resonance #5
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #6
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #502
1 1 1 1 1
1 1 1 1 2
1 1 3 3 3
1 1 3 3 4
1 2 3 4 5
has #6 resonances.
Resonance #1
S0: 1 3 5
S1: 1 2 3 4
Resonance #2
S0: 1 3 4 5
S1: 1 2
Resonance #3
S0: 1 3 4 5
S1: 1 2 3
Resonance #4
S0: 1 2 3 5
S1: 1 3 4
Resonance #5
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #6
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #503
1 1 1 1 1
1 1 1 1 2
1 1 3 3 3
1 1 3 4 3
1 2 3 3 5
has #3 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 3 4 5
S1: 1 2 3

```

```

Resonance #3
S0: 1 3 4 5
S1: 1 2 3 4
*****
The semigroup #504
1 1 1 1 1
1 1 1 1 2
1 1 3 3 3
1 1 3 4 4
1 2 3 4 5
has #3 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 3 4 5
S1: 1 2 3
Resonance #3
S0: 1 3 4 5
S1: 1 2 3 4
*****
The semigroup #509
1 1 1 1 1
1 1 1 1 2
1 1 3 4 1
1 1 4 3 1
1 2 1 1 5
has #6 resonances.
Resonance #1
S0: 1 3 5
S1: 1 2 4
Resonance #2
S0: 1 3 4 5
S1: 1 2
Resonance #3
S0: 1 2 3 5
S1: 1 4
Resonance #4
S0: 1 2 3 5
S1: 1 2 4
Resonance #5
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #6
S0: 1 2 3 5
S1: 1 2 4 5
*****
The semigroup #512
1 1 1 1 1
1 1 1 1 2
1 1 3 4 3
1 1 4 3 4
1 2 3 4 5
has #5 resonances.
Resonance #1
S0: 1 3 5
S1: 1 2 4

```

```

Resonance #2
S0: 1 3 4 5
S1: 1 2
Resonance #3
S0: 1 2 3 5
S1: 1 4
Resonance #4
S0: 1 2 3 5
S1: 1 2 4
Resonance #5
S0: 1 3 4 5
S1: 1 2 3 4
*****
The semigroup #582
1 1 1 1 1
1 1 1 2 2
1 1 1 2 2
1 2 2 4 4
1 2 2 4 4
has #4 resonances.
Resonance #1
S0: 1 4 5
S1: 1 2 3
Resonance #2
S0: 1 2 4 5
S1: 1 2 3
Resonance #3
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #4
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #583
1 1 1 1 1
1 1 1 2 2
1 1 1 2 2
1 2 2 4 4
1 2 2 4 5
has #3 resonances.
Resonance #1
S0: 1 4 5
S1: 1 2 3
Resonance #2
S0: 1 2 4 5
S1: 1 2 3
Resonance #3
S0: 1 2 4 5
S1: 1 2 3 4
*****
The semigroup #586
1 1 1 1 1
1 1 1 2 2
1 1 1 2 2
1 2 2 4 5
1 2 2 5 4
has #5 resonances.

```

```

Resonance #1
S0: 1 4 5
S1: 1 2 3
Resonance #2
S0: 1 2 4
S1: 1 2 3 5
Resonance #3
S0: 1 2 4 5
S1: 1 2 3
Resonance #4
S0: 1 2 3 4
S1: 1 2 5
Resonance #5
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #592
1 1 1 1 1
1 1 1 2 2
1 1 1 2 3
1 2 2 4 4
1 2 3 4 5
has #3 resonances.
Resonance #1
S0: 1 4 5
S1: 1 2 3
Resonance #2
S0: 1 2 4 5
S1: 1 2 3
Resonance #3
S0: 1 2 4 5
S1: 1 2 3 4
*****
The semigroup #595
1 1 1 1 1
1 1 1 2 2
1 1 1 3 3
1 2 3 4 4
1 2 3 4 4
has #5 resonances.
Resonance #1
S0: 1 4 5
S1: 1 2 3
Resonance #2
S0: 1 3 4 5
S1: 1 2
Resonance #3
S0: 1 2 4 5
S1: 1 3
Resonance #4
S0: 1 3 4 5
S1: 1 2 3
Resonance #5
S0: 1 2 4 5
S1: 1 2 3
*****
The semigroup #596

```

```

1 1 1 1 1
1 1 1 2 2
1 1 1 3 3
1 2 3 4 4
1 2 3 4 5
has #5 resonances.
Resonance #1
S0: 1 4 5
S1: 1 2 3
Resonance #2
S0: 1 3 4 5
S1: 1 2
Resonance #3
S0: 1 2 4 5
S1: 1 3
Resonance #4
S0: 1 3 4 5
S1: 1 2 3
Resonance #5
S0: 1 2 4 5
S1: 1 2 3
*****
The semigroup #598
1 1 1 1 1
1 1 1 2 2
1 1 1 3 3
1 2 3 4 5
1 2 3 5 4
has #6 resonances.
Resonance #1
S0: 1 4 5
S1: 1 2 3
Resonance #2
S0: 1 3 4 5
S1: 1 2
Resonance #3
S0: 1 2 4 5
S1: 1 3
Resonance #4
S0: 1 3 4 5
S1: 1 2 3
Resonance #5
S0: 1 2 4 5
S1: 1 2 3
Resonance #6
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #600
1 1 1 1 1
1 1 1 2 2
1 1 2 3 3
1 2 3 4 4
1 2 3 4 4
has #2 resonances.
Resonance #1
S0: 1 2 4 5

```



```

S1: 1 3
Resonance #2
S0: 1 2 4 5
S1: 1 2 3
*****
The semigroup #601
1 1 1 1 1
1 1 1 2 2
1 1 2 3 3
1 2 3 4 4
1 2 3 4 5
has #2 resonances.
Resonance #1
S0: 1 2 4 5
S1: 1 3
Resonance #2
S0: 1 2 4 5
S1: 1 2 3
*****
The semigroup #603
1 1 1 1 1
1 1 1 2 2
1 1 2 3 3
1 2 3 4 5
1 2 3 5 4
has #3 resonances.
Resonance #1
S0: 1 2 4 5
S1: 1 3
Resonance #2
S0: 1 2 4 5
S1: 1 2 3
Resonance #3
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #604
1 1 1 1 1
1 1 1 2 2
1 1 3 1 1
1 2 1 4 4
1 2 1 4 4
has #3 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 3 4 5
S1: 1 2 3
Resonance #3
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #605
1 1 1 1 1
1 1 1 2 2
1 1 3 1 1

```

```

1 2 1 4 4
1 2 1 4 5
has #2 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 3 4 5
S1: 1 2 3
*****
The semigroup #607
1 1 1 1 1
1 1 1 2 2
1 1 3 1 1
1 2 1 4 5
1 2 1 5 4
has #4 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 3 4 5
S1: 1 2 3
Resonance #3
S0: 1 2 3 4
S1: 1 2 5
Resonance #4
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #608
1 1 1 1 1
1 1 1 2 2
1 1 3 1 3
1 2 1 4 4
1 2 3 4 5
has #2 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 3 4 5
S1: 1 2 3
*****
The semigroup #609
1 1 1 1 1
1 1 1 2 2
1 1 3 3 3
1 2 3 4 4
1 2 3 4 4
has #2 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 3 4 5
S1: 1 2 3

```

The semigroup #610

1 1 1 1 1

1 1 1 2 2

1 1 3 3 3

1 2 3 4 4

1 2 3 4 5

has #2 resonances.

Resonance #1

S0: 1 3 4 5

S1: 1 2

Resonance #2

S0: 1 3 4 5

S1: 1 2 3

The semigroup #612

1 1 1 1 1

1 1 1 2 2

1 1 3 3 3

1 2 3 4 5

1 2 3 5 4

has #3 resonances.

Resonance #1

S0: 1 3 4 5

S1: 1 2

Resonance #2

S0: 1 3 4 5

S1: 1 2 3

Resonance #3

S0: 1 2 3 4

S1: 1 2 3 5

The semigroup #654

1 1 1 1 1

1 1 1 2 3

1 1 1 3 2

1 2 3 4 5

1 3 2 5 4

has #4 resonances.

Resonance #1

S0: 1 4 5

S1: 1 2 3

Resonance #2

S0: 1 3 4

S1: 1 2 5

Resonance #3

S0: 1 2 4

S1: 1 3 5

Resonance #4

S0: 1 2 3 4

S1: 1 2 3 5

The semigroup #662

1 1 1 1 1

1 1 2 2 2

1 2 3 3 3

1 2 3 3 3

```

1 2 3 3 3
has #3 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #3
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #663
1 1 1 1 1
1 1 2 2 2
1 2 3 3 3
1 2 3 3 3
1 2 3 3 4
has #2 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #664
1 1 1 1 1
1 1 2 2 2
1 2 3 3 3
1 2 3 3 3
1 2 3 3 5
has #2 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #667
1 1 1 1 1
1 1 2 2 2
1 2 3 3 3
1 2 3 3 4
1 2 3 4 5
has #2 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #668
1 1 1 1 1
1 1 2 2 2

```

```

1 2 3 3 3
1 2 3 4 3
1 2 3 3 5
has #1 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
*****
The semigroup #670
1 1 1 1 1
1 1 2 2 2
1 2 3 3 3
1 2 3 4 4
1 2 3 4 4
has #1 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
*****
The semigroup #671
1 1 1 1 1
1 1 2 2 2
1 2 3 3 3
1 2 3 4 4
1 2 3 4 5
has #1 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
*****
The semigroup #673
1 1 1 1 1
1 1 2 2 2
1 2 3 3 3
1 2 3 4 5
1 2 3 5 4
has #2 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #676
1 1 1 1 1
1 1 2 2 2
1 2 3 3 5
1 2 3 3 5
1 2 5 5 3
has #2 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 2 3 4
S1: 1 2 5

```

```

*****
The semigroup #677
1 1 1 1 1
1 1 2 2 2
1 2 3 3 5
1 2 3 4 5
1 2 5 5 3
has #2 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
Resonance #2
S0: 1 2 3 4
S1: 1 2 5
*****

The semigroup #678
1 1 1 1 1
1 1 2 2 2
1 2 3 4 4
1 2 4 3 3
1 2 4 3 3
has #2 resonances.
Resonance #1
S0: 1 2 3
S1: 1 2 4 5
Resonance #2
S0: 1 3 4 5
S1: 1 2
*****

The semigroup #679
1 1 1 1 1
1 1 2 2 2
1 2 3 4 5
1 2 4 5 3
1 2 5 3 4
has #1 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2
*****

The semigroup #682
1 1 1 1 1
1 2 1 1 1
1 1 3 1 1
1 1 1 4 4
1 1 1 4 4
has #3 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 4 5
Resonance #2
S0: 1 2 3 4
S1: 1 3 4 5
Resonance #3
S0: 1 2 3 4
S1: 1 2 4 5
*****

```

The semigroup #685

1 1 1 1 1

1 2 1 1 1

1 1 3 1 1

1 1 1 4 5

1 1 1 5 4

has #4 resonances.

Resonance #1

S0: 1 2 3 4

S1: 1 5

Resonance #2

S0: 1 2 3 4

S1: 1 3 5

Resonance #3

S0: 1 2 3 4

S1: 1 2 5

Resonance #4

S0: 1 2 3 4

S1: 1 2 3 5

The semigroup #698

1 1 1 1 1

1 2 1 1 1

1 1 3 3 3

1 1 3 3 3

1 1 3 3 3

has #7 resonances.

Resonance #1

S0: 1 2 3

S1: 1 3 4 5

Resonance #2

S0: 1 2 3 5

S1: 1 3 4

Resonance #3

S0: 1 2 3 4

S1: 1 3 5

Resonance #4

S0: 1 2 3 5

S1: 1 3 4 5

Resonance #5

S0: 1 2 3 5

S1: 1 2 3 4

Resonance #6

S0: 1 2 3 4

S1: 1 3 4 5

Resonance #7

S0: 1 2 3 4

S1: 1 2 3 5

The semigroup #699

1 1 1 1 1

1 2 1 1 1

1 1 3 3 3

1 1 3 3 3

1 1 3 3 4

has #3 resonances.

Resonance #1

```

S0: 1 2 3 4
S1: 1 3 5
Resonance #2
S0: 1 2 3 4
S1: 1 3 4 5
Resonance #3
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #700
1 1 1 1 1
1 2 1 1 1
1 1 3 3 3
1 1 3 3 3
1 1 3 3 5
has #3 resonances.
Resonance #1
S0: 1 2 3 5
S1: 1 3 4
Resonance #2
S0: 1 2 3 5
S1: 1 3 4 5
Resonance #3
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #703
1 1 1 1 1
1 2 1 1 1
1 1 3 3 3
1 1 3 3 4
1 1 3 4 5
has #2 resonances.
Resonance #1
S0: 1 2 3 5
S1: 1 3 4
Resonance #2
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #706
1 1 1 1 1
1 2 1 1 1
1 1 3 3 3
1 1 3 4 4
1 1 3 4 4
has #1 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 3 4 5
*****
The semigroup #709
1 1 1 1 1
1 2 1 1 1
1 1 3 3 3
1 1 3 4 5
1 1 3 5 4

```



```

has #2 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 3 5
Resonance #2
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #712
1 1 1 1 1
1 2 1 1 1
1 1 3 3 5
1 1 3 3 5
1 1 5 5 3
has #3 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 5
Resonance #2
S0: 1 2 3 4
S1: 1 2 5
Resonance #3
S0: 1 2 3 5
S1: 1 3 4 5
*****
The semigroup #714
1 1 1 1 1
1 2 1 1 1
1 1 3 3 5
1 1 3 4 5
1 1 5 5 3
has #2 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 5
Resonance #2
S0: 1 2 3 4
S1: 1 2 5
*****
The semigroup #717
1 1 1 1 1
1 2 1 1 1
1 1 3 4 4
1 1 4 3 3
1 1 4 3 3
has #3 resonances.
Resonance #1
S0: 1 2 3
S1: 1 4 5
Resonance #2
S0: 1 2 3
S1: 1 2 4 5
Resonance #3
S0: 1 2 3 4
S1: 1 3 4 5
*****
The semigroup #737

```

```

1 1 1 1 1
1 2 1 1 2
1 1 3 3 1
1 1 3 3 1
1 2 1 1 2
has #4 resonances.
Resonance #1
S0: 1 2 3 5
S1: 1 3 4
Resonance #2
S0: 1 2 3 4
S1: 1 2 5
Resonance #3
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #4
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #738
1 1 1 1 1
1 2 1 1 2
1 1 3 3 1
1 1 3 3 1
1 2 1 1 5
has #2 resonances.
Resonance #1
S0: 1 2 3 5
S1: 1 3 4
Resonance #2
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #743
1 1 1 1 1
1 2 1 1 2
1 1 3 3 3
1 1 3 3 3
1 2 3 3 5
has #2 resonances.
Resonance #1
S0: 1 2 3 5
S1: 1 3 4
Resonance #2
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #745
1 1 1 1 1
1 2 1 1 2
1 1 3 3 3
1 1 3 3 4
1 2 3 4 5
has #2 resonances.
Resonance #1
S0: 1 2 3 5
S1: 1 3 4

```

```

Resonance #2
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #751
1 1 1 1 1
1 2 1 1 2
1 1 3 4 1
1 1 4 3 1
1 2 1 1 2
has #5 resonances.
Resonance #1
S0: 1 2 3
S1: 1 2 4 5
Resonance #2
S0: 1 2 3 5
S1: 1 4
Resonance #3
S0: 1 2 3 5
S1: 1 2 4
Resonance #4
S0: 1 2 3 4
S1: 1 2 5
Resonance #5
S0: 1 2 3 5
S1: 1 2 4 5
*****
The semigroup #752
1 1 1 1 1
1 2 1 1 2
1 1 3 4 1
1 1 4 3 1
1 2 1 1 5
has #3 resonances.
Resonance #1
S0: 1 2 3 5
S1: 1 4
Resonance #2
S0: 1 2 3 5
S1: 1 2 4
Resonance #3
S0: 1 2 3 5
S1: 1 2 4 5
*****
The semigroup #757
1 1 1 1 1
1 2 1 1 2
1 1 3 4 3
1 1 4 3 4
1 2 3 4 5
has #2 resonances.
Resonance #1
S0: 1 2 3 5
S1: 1 4
Resonance #2
S0: 1 2 3 5
S1: 1 2 4

```

The semigroup #770

1 1 1 1 1

1 2 1 1 5

1 1 3 4 1

1 1 4 3 1

1 5 1 1 2

has #5 resonances.

Resonance #1

S0: 1 2 3

S1: 1 4 5

Resonance #2

S0: 1 2 3 5

S1: 1 4

Resonance #3

S0: 1 2 3 4

S1: 1 5

Resonance #4

S0: 1 2 3 5

S1: 1 2 4 5

Resonance #5

S0: 1 2 3 4

S1: 1 3 4 5

The semigroup #779

1 1 1 1 1

1 2 1 2 2

1 1 3 3 3

1 2 3 4 5

1 2 3 5 4

has #1 resonances.

Resonance #1

S0: 1 2 3 4

S1: 1 2 3 5

The semigroup #835

1 1 1 1 1

1 2 2 2 2

1 2 2 2 2

1 2 2 2 2

1 2 2 2 2

has #12 resonances.

Resonance #1

S0: 1 2 5

S1: 1 2 3 4

Resonance #2

S0: 1 2 4

S1: 1 2 3 5

Resonance #3

S0: 1 2 3

S1: 1 2 4 5

Resonance #4

S0: 1 2 4 5

S1: 1 2 3

Resonance #5

S0: 1 2 3 5

S1: 1 2 4

```

Resonance #6
S0: 1 2 3 4
S1: 1 2 5
Resonance #7
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #8
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #9
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #10
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #11
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #12
S0: 1 2 3 4
S1: 1 2 3 5
*****

```

```

The semigroup #836
1 1 1 1 1
1 2 2 2 2
1 2 2 2 2
1 2 2 2 2
1 2 2 2 3
has #6 resonances.
Resonance #1
S0: 1 2 3
S1: 1 2 4 5
Resonance #2
S0: 1 2 3 5
S1: 1 2 4
Resonance #3
S0: 1 2 3 4
S1: 1 2 5
Resonance #4
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #5
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #6
S0: 1 2 3 4
S1: 1 2 3 5
*****

```

```

The semigroup #837
1 1 1 1 1
1 2 2 2 2
1 2 2 2 2
1 2 2 2 2
1 2 2 2 5
has #7 resonances.
Resonance #1
S0: 1 2 5

```

```

S1: 1 2 3 4
Resonance #2
S0: 1 2 4 5
S1: 1 2 3
Resonance #3
S0: 1 2 3 5
S1: 1 2 4
Resonance #4
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #5
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #6
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #7
S0: 1 2 3 5
S1: 1 2 3 4
*****

```

The semigroup #844

```

1 1 1 1 1
1 2 2 2 2
1 2 2 2 2
1 2 2 2 3
1 2 2 3 2

```

has #5 resonances.

Resonance #1

S0: 1 2 5

S1: 1 2 3 4

Resonance #2

S0: 1 2 4

S1: 1 2 3 5

Resonance #3

S0: 1 2 3

S1: 1 2 4 5

Resonance #4

S0: 1 2 3 5

S1: 1 2 3 4

Resonance #5

S0: 1 2 3 4

S1: 1 2 3 5

The semigroup #845

```

1 1 1 1 1
1 2 2 2 2
1 2 2 2 2
1 2 2 2 3
1 2 2 3 3

```

has #3 resonances.

Resonance #1

S0: 1 2 3

S1: 1 2 4 5

Resonance #2

S0: 1 2 3 5

S1: 1 2 3 4

Resonance #3

```

S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #846
1 1 1 1 1
1 2 2 2 2
1 2 2 2 2
1 2 2 2 3
1 2 2 3 4
has #2 resonances.
Resonance #1
S0: 1 2 4
S1: 1 2 3 5
Resonance #2
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #847
1 1 1 1 1
1 2 2 2 2
1 2 2 2 2
1 2 2 2 4
1 2 2 4 5
has #5 resonances.
Resonance #1
S0: 1 2 5
S1: 1 2 3 4
Resonance #2
S0: 1 2 4 5
S1: 1 2 3
Resonance #3
S0: 1 2 3 5
S1: 1 2 4
Resonance #4
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #5
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #850
1 1 1 1 1
1 2 2 2 2
1 2 2 2 2
1 2 2 3 2
1 2 2 2 3
has #5 resonances.
Resonance #1
S0: 1 2 3
S1: 1 2 4 5
Resonance #2
S0: 1 2 3 5
S1: 1 2 4
Resonance #3
S0: 1 2 3 4
S1: 1 2 5
Resonance #4

```

```

S0: 1 2 3 5
S1: 1 2 3 4
Resonance #5
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #851
1 1 1 1 1
1 2 2 2 2
1 2 2 2 2
1 2 2 3 2
1 2 2 2 5
has #3 resonances.
Resonance #1
S0: 1 2 3 5
S1: 1 2 4
Resonance #2
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #3
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #854
1 1 1 1 1
1 2 2 2 2
1 2 2 2 2
1 2 2 3 3
1 2 2 3 3
has #3 resonances.
Resonance #1
S0: 1 2 3
S1: 1 2 4 5
Resonance #2
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #3
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #855
1 1 1 1 1
1 2 2 2 2
1 2 2 2 2
1 2 2 4 2
1 2 2 2 5
has #3 resonances.
Resonance #1
S0: 1 2 4 5
S1: 1 2 3
Resonance #2
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #3
S0: 1 2 4 5
S1: 1 2 3 4
*****

```


The semigroup #858

1 1 1 1 1

1 2 2 2 2

1 2 2 2 2

1 2 2 4 4

1 2 2 4 4

has #3 resonances.

Resonance #1

S0: 1 2 4 5

S1: 1 2 3

Resonance #2

S0: 1 2 4 5

S1: 1 2 3 4

Resonance #3

S0: 1 2 3 4

S1: 1 2 4 5

The semigroup #859

1 1 1 1 1

1 2 2 2 2

1 2 2 2 2

1 2 2 4 4

1 2 2 4 5

has #2 resonances.

Resonance #1

S0: 1 2 4 5

S1: 1 2 3

Resonance #2

S0: 1 2 4 5

S1: 1 2 3 4

The semigroup #862

1 1 1 1 1

1 2 2 2 2

1 2 2 2 2

1 2 2 4 5

1 2 2 5 4

has #4 resonances.

Resonance #1

S0: 1 2 4

S1: 1 2 3 5

Resonance #2

S0: 1 2 4 5

S1: 1 2 3

Resonance #3

S0: 1 2 3 4

S1: 1 2 5

Resonance #4

S0: 1 2 3 4

S1: 1 2 3 5

The semigroup #874

1 1 1 1 1

1 2 2 2 2

1 2 2 2 3

1 2 2 2 3

1 2 3 3 5

```

has #2 resonances.
Resonance #1
S0: 1 2 5
S1: 1 2 3 4
Resonance #2
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #876
1 1 1 1 1
1 2 2 2 2
1 2 2 2 3
1 2 2 2 4
1 2 3 4 5
has #5 resonances.
Resonance #1
S0: 1 2 5
S1: 1 2 3 4
Resonance #2
S0: 1 2 4 5
S1: 1 2 3
Resonance #3
S0: 1 2 3 5
S1: 1 2 4
Resonance #4
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #5
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #877
1 1 1 1 1
1 2 2 2 2
1 2 2 2 3
1 2 2 3 4
1 2 3 4 5
has #2 resonances.
Resonance #1
S0: 1 2 3 5
S1: 1 2 4
Resonance #2
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #878
1 1 1 1 1
1 2 2 2 2
1 2 2 2 3
1 2 2 4 2
1 2 3 2 5
has #2 resonances.
Resonance #1
S0: 1 2 4 5
S1: 1 2 3
Resonance #2
S0: 1 2 4 5

```

```

S1: 1 2 3 4
*****
The semigroup #879
1 1 1 1 1
1 2 2 2 2
1 2 2 2 3
1 2 2 4 4
1 2 3 4 5
has #2 resonances.
Resonance #1
S0: 1 2 4 5
S1: 1 2 3
Resonance #2
S0: 1 2 4 5
S1: 1 2 3 4
*****
The semigroup #889
1 1 1 1 1
1 2 2 2 2
1 2 2 3 3
1 2 3 4 4
1 2 3 4 4
has #1 resonances.
Resonance #1
S0: 1 2 4 5
S1: 1 2 3
*****
The semigroup #890
1 1 1 1 1
1 2 2 2 2
1 2 2 3 3
1 2 3 4 4
1 2 3 4 5
has #1 resonances.
Resonance #1
S0: 1 2 4 5
S1: 1 2 3
*****
The semigroup #892
1 1 1 1 1
1 2 2 2 2
1 2 2 3 3
1 2 3 4 5
1 2 3 5 4
has #2 resonances.
Resonance #1
S0: 1 2 4 5
S1: 1 2 3
Resonance #2
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #895
1 1 1 1 1
1 2 2 2 2
1 2 3 2 2
1 2 2 4 4

```

```

1 2 2 4 4
has #1 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #898
1 1 1 1 1
1 2 2 2 2
1 2 3 2 2
1 2 2 4 5
1 2 2 5 4
has #2 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 2 5
Resonance #2
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #911
1 1 1 1 1
1 2 2 2 2
1 2 3 3 3
1 2 3 3 3
1 2 3 3 3
has #2 resonances.
Resonance #1
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #2
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #912
1 1 1 1 1
1 2 2 2 2
1 2 3 3 3
1 2 3 3 3
1 2 3 3 4
has #1 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #913
1 1 1 1 1
1 2 2 2 2
1 2 3 3 3
1 2 3 3 3
1 2 3 3 5
has #1 resonances.
Resonance #1
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #916

```

```

1 1 1 1 1
1 2 2 2 2
1 2 3 3 3
1 2 3 3 4
1 2 3 4 5
has #1 resonances.
Resonance #1
S0: 1 2 3 5
S1: 1 2 3 4
*****
The semigroup #922
1 1 1 1 1
1 2 2 2 2
1 2 3 3 3
1 2 3 4 5
1 2 3 5 4
has #1 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #925
1 1 1 1 1
1 2 2 2 2
1 2 3 3 5
1 2 3 3 5
1 2 5 5 3
has #1 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 2 5
*****
The semigroup #927
1 1 1 1 1
1 2 2 2 2
1 2 3 3 5
1 2 3 4 5
1 2 5 5 3
has #1 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 2 5
*****
The semigroup #930
1 1 1 1 1
1 2 2 2 2
1 2 3 4 4
1 2 4 3 3
1 2 4 3 3
has #1 resonances.
Resonance #1
S0: 1 2 3
S1: 1 2 4 5
*****
The semigroup #937
1 1 1 1 1
1 2 2 2 5

```

```

1 2 2 2 5
1 2 2 2 5
1 5 5 5 2
has #3 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 5
Resonance #2
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #3
S0: 1 2 3 5
S1: 1 2 4 5
*****
The semigroup #939
1 1 1 1 1
1 2 2 2 5
1 2 2 2 5
1 2 2 3 5
1 5 5 5 2
has #2 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 5
Resonance #2
S0: 1 2 3 5
S1: 1 2 4 5
*****
The semigroup #941
1 1 1 1 1
1 2 2 2 5
1 2 2 2 5
1 2 2 4 5
1 5 5 5 2
has #2 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 5
Resonance #2
S0: 1 2 4 5
S1: 1 2 3 5
*****
The semigroup #947
1 1 1 1 1
1 2 2 2 5
1 2 2 3 5
1 2 3 4 5
1 5 5 5 2
has #2 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 5
Resonance #2
S0: 1 2 4 5
S1: 1 2 3 5
*****
The semigroup #949

```

```

1 1 1 1 1
1 2 2 2 5
1 2 3 2 5
1 2 2 4 5
1 5 5 5 2
has #1 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 5
*****
The semigroup #952
1 1 1 1 1
1 2 2 2 5
1 2 3 3 5
1 2 3 3 5
1 5 5 5 2
has #1 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 5
*****
The semigroup #954
1 1 1 1 1
1 2 2 2 5
1 2 3 3 5
1 2 3 4 5
1 5 5 5 2
has #1 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 5
*****
The semigroup #959
1 1 1 1 1
1 2 2 2 5
1 2 3 4 5
1 2 4 3 5
1 5 5 5 2
has #2 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 5
Resonance #2
S0: 1 2 3 5
S1: 1 2 4 5
*****
The semigroup #963
1 1 1 1 1
1 2 2 4 4
1 2 2 4 4
1 4 4 2 2
1 4 4 2 2
has #3 resonances.
Resonance #1
S0: 1 2 3
S1: 1 4 5
Resonance #2

```

```

S0: 1 2 4 5
S1: 1 2 3 4
Resonance #3
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #964
1 1 1 1 1
1 2 2 4 4
1 2 2 4 4
1 4 4 2 2
1 4 4 2 3
has #2 resonances.
Resonance #1
S0: 1 2 3
S1: 1 4 5
Resonance #2
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #965
1 1 1 1 1
1 2 2 4 4
1 2 3 4 4
1 4 4 2 2
1 4 4 2 2
has #2 resonances.
Resonance #1
S0: 1 2 3
S1: 1 4 5
Resonance #2
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #967
1 1 1 1 1
1 2 2 4 4
1 2 3 4 5
1 4 4 2 2
1 4 5 2 2
has #2 resonances.
Resonance #1
S0: 1 2 3
S1: 1 4 5
Resonance #2
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #968
1 1 1 1 1
1 2 2 4 4
1 2 3 4 5
1 4 4 2 2
1 4 5 2 3
has #2 resonances.
Resonance #1
S0: 1 2 3

```



```

S1: 1 4 5
Resonance #2
S0: 1 2 3 4
S1: 1 2 4 5
*****

The semigroup #983
1 1 1 1 1
1 2 3 3 3
1 3 2 2 2
1 3 2 2 2
1 3 2 2 2
has #3 resonances.
Resonance #1
S0: 1 2
S1: 1 3 4 5
Resonance #2
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #3
S0: 1 2 3 4
S1: 1 2 3 5
*****

The semigroup #990
1 1 1 1 1
1 2 3 4 5
1 3 2 5 4
1 4 5 2 3
1 5 4 3 2
has #3 resonances.
Resonance #1
S0: 1 2 5
S1: 1 3 4
Resonance #2
S0: 1 2 4
S1: 1 3 5
Resonance #3
S0: 1 2 3
S1: 1 4 5
*****

The semigroup #991
1 1 1 1 1
1 2 3 4 5
1 3 2 5 4
1 4 5 3 2
1 5 4 2 3
has #1 resonances.
Resonance #1
S0: 1 2 3
S1: 1 4 5
*****

The semigroup #996
1 1 1 1 5
1 1 1 1 5
1 1 1 1 5
1 1 1 1 5
5 5 5 5 1
has #13 resonances.

```

```

Resonance #1
S0: 1 4 5
S1: 1 2 3 5
Resonance #2
S0: 1 3 5
S1: 1 2 4 5
Resonance #3
S0: 1 2 5
S1: 1 3 4 5
Resonance #4
S0: 1 2 3 4
S1: 5
Resonance #5
S0: 1 3 4 5
S1: 1 2 5
Resonance #6
S0: 1 2 4 5
S1: 1 3 5
Resonance #7
S0: 1 2 3 5
S1: 1 4 5
Resonance #8
S0: 1 3 4 5
S1: 1 2 4 5
Resonance #9
S0: 1 3 4 5
S1: 1 2 3 5
Resonance #10
S0: 1 2 4 5
S1: 1 3 4 5
Resonance #11
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #12
S0: 1 2 3 5
S1: 1 3 4 5
Resonance #13
S0: 1 2 3 5
S1: 1 2 4 5
*****

```

The semigroup #997

```

1 1 1 1 5
1 1 1 1 5
1 1 1 1 5
1 1 1 2 5
5 5 5 5 1

```

has #7 resonances.

Resonance #1

```

S0: 1 2 5
S1: 1 3 4 5

```

Resonance #2

```

S0: 1 2 3 4
S1: 5

```

Resonance #3

```

S0: 1 2 4 5
S1: 1 3 5

```

Resonance #4

S0: 1 2 3 5
 S1: 1 4 5
 Resonance #5
 S0: 1 2 4 5
 S1: 1 2 3 5
 Resonance #6
 S0: 1 2 3 5
 S1: 1 3 4 5
 Resonance #7
 S0: 1 2 3 5
 S1: 1 2 4 5

The semigroup #998

1 1 1 1 5
 1 1 1 1 5
 1 1 1 1 5
 1 1 1 4 5
 5 5 5 5 1

has #8 resonances.

Resonance #1

S0: 1 4 5
 S1: 1 2 3 5

Resonance #2

S0: 1 2 3 4
 S1: 5

Resonance #3

S0: 1 3 4 5
 S1: 1 2 5

Resonance #4

S0: 1 2 4 5
 S1: 1 3 5

Resonance #5

S0: 1 3 4 5
 S1: 1 2 4 5

Resonance #6

S0: 1 3 4 5
 S1: 1 2 3 5

Resonance #7

S0: 1 2 4 5
 S1: 1 3 4 5

Resonance #8

S0: 1 2 4 5
 S1: 1 2 3 5

The semigroup #1004

1 1 1 1 5
 1 1 1 1 5
 1 1 1 2 5
 1 1 2 1 5
 5 5 5 5 1

has #6 resonances.

Resonance #1

S0: 1 4 5
 S1: 1 2 3 5

Resonance #2

S0: 1 3 5
 S1: 1 2 4 5

```

Resonance #3
S0: 1 2 5
S1: 1 3 4 5
Resonance #4
S0: 1 2 3 4
S1: 5
Resonance #5
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #6
S0: 1 2 3 5
S1: 1 2 4 5
*****
The semigroup #1005
1 1 1 1 5
1 1 1 1 5
1 1 1 2 5
1 1 2 2 5
5 5 5 5 1
has #4 resonances.
Resonance #1
S0: 1 2 5
S1: 1 3 4 5
Resonance #2
S0: 1 2 3 4
S1: 5
Resonance #3
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #4
S0: 1 2 3 5
S1: 1 2 4 5
*****
The semigroup #1006
1 1 1 1 5
1 1 1 1 5
1 1 1 2 5
1 1 2 3 5
5 5 5 5 1
has #3 resonances.
Resonance #1
S0: 1 3 5
S1: 1 2 4 5
Resonance #2
S0: 1 2 3 4
S1: 5
Resonance #3
S0: 1 2 3 5
S1: 1 2 4 5
*****
The semigroup #1007
1 1 1 1 5
1 1 1 1 5
1 1 1 3 5
1 1 3 4 5
5 5 5 5 1
has #6 resonances.

```

```

Resonance #1
S0: 1 4 5
S1: 1 2 3 5
Resonance #2
S0: 1 2 3 4
S1: 5
Resonance #3
S0: 1 3 4 5
S1: 1 2 5
Resonance #4
S0: 1 2 4 5
S1: 1 3 5
Resonance #5
S0: 1 3 4 5
S1: 1 2 3 5
Resonance #6
S0: 1 2 4 5
S1: 1 2 3 5
*****
The semigroup #1010
1 1 1 1 5
1 1 1 1 5
1 1 2 1 5
1 1 1 2 5
5 5 5 5 1
has #6 resonances.
Resonance #1
S0: 1 2 5
S1: 1 3 4 5
Resonance #2
S0: 1 2 3 4
S1: 5
Resonance #3
S0: 1 2 4 5
S1: 1 3 5
Resonance #4
S0: 1 2 3 5
S1: 1 4 5
Resonance #5
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #6
S0: 1 2 3 5
S1: 1 2 4 5
*****
The semigroup #1011
1 1 1 1 5
1 1 1 1 5
1 1 2 1 5
1 1 1 4 5
5 5 5 5 1
has #4 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 2 4 5

```

```

S1: 1 3 5
Resonance #3
S0: 1 2 4 5
S1: 1 3 4 5
Resonance #4
S0: 1 2 4 5
S1: 1 2 3 5
*****
The semigroup #1013
1 1 1 1 5
1 1 1 1 5
1 1 2 2 5
1 1 2 2 5
5 5 5 5 1
has #4 resonances.
Resonance #1
S0: 1 2 5
S1: 1 3 4 5
Resonance #2
S0: 1 2 3 4
S1: 5
Resonance #3
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #4
S0: 1 2 3 5
S1: 1 2 4 5
*****
The semigroup #1014
1 1 1 1 5
1 1 1 1 5
1 1 3 1 5
1 1 1 4 5
5 5 5 5 1
has #4 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 3 4 5
S1: 1 2 5
Resonance #3
S0: 1 3 4 5
S1: 1 2 4 5
Resonance #4
S0: 1 3 4 5
S1: 1 2 3 5
*****
The semigroup #1016
1 1 1 1 5
1 1 1 1 5
1 1 3 3 5
1 1 3 3 5
5 5 5 5 1
has #4 resonances.
Resonance #1
S0: 1 2 3 4

```

```

S1: 5
Resonance #2
S0: 1 3 4 5
S1: 1 2 5
Resonance #3
S0: 1 3 4 5
S1: 1 2 3 5
Resonance #4
S0: 1 2 3 5
S1: 1 3 4 5
*****
The semigroup #1017
1 1 1 1 5
1 1 1 1 5
1 1 3 3 5
1 1 3 4 5
5 5 5 5 1
has #3 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 3 4 5
S1: 1 2 5
Resonance #3
S0: 1 3 4 5
S1: 1 2 3 5
*****
The semigroup #1020
1 1 1 1 5
1 1 1 1 5
1 1 3 4 5
1 1 4 3 5
5 5 5 5 1
has #5 resonances.
Resonance #1
S0: 1 3 5
S1: 1 2 4 5
Resonance #2
S0: 1 2 3 4
S1: 5
Resonance #3
S0: 1 3 4 5
S1: 1 2 5
Resonance #4
S0: 1 2 3 5
S1: 1 4 5
Resonance #5
S0: 1 2 3 5
S1: 1 2 4 5
*****
The semigroup #1026
1 1 1 1 5
1 1 1 2 5
1 1 1 2 5
1 2 2 4 5
5 5 5 5 1

```

```

has #3 resonances.
Resonance #1
S0: 1 4 5
S1: 1 2 3 5
Resonance #2
S0: 1 2 3 4
S1: 5
Resonance #3
S0: 1 2 4 5
S1: 1 2 3 5
*****
The semigroup #1028
1 1 1 1 5
1 1 1 2 5
1 1 1 3 5
1 2 3 4 5
5 5 5 5 1
has #6 resonances.
Resonance #1
S0: 1 4 5
S1: 1 2 3 5
Resonance #2
S0: 1 2 3 4
S1: 5
Resonance #3
S0: 1 3 4 5
S1: 1 2 5
Resonance #4
S0: 1 2 4 5
S1: 1 3 5
Resonance #5
S0: 1 3 4 5
S1: 1 2 3 5
Resonance #6
S0: 1 2 4 5
S1: 1 2 3 5
*****
The semigroup #1029
1 1 1 1 5
1 1 1 2 5
1 1 2 3 5
1 2 3 4 5
5 5 5 5 1
has #3 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 2 4 5
S1: 1 3 5
Resonance #3
S0: 1 2 4 5
S1: 1 2 3 5
*****
The semigroup #1030
1 1 1 1 5
1 1 1 2 5

```



```

1 1 3 1 5
1 2 1 4 5
5 5 5 5 1
has #3 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 3 4 5
S1: 1 2 5
Resonance #3
S0: 1 3 4 5
S1: 1 2 3 5
*****
The semigroup #1031
1 1 1 1 5
1 1 1 2 5
1 1 3 3 5
1 2 3 4 5
5 5 5 5 1
has #3 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 3 4 5
S1: 1 2 5
Resonance #3
S0: 1 3 4 5
S1: 1 2 3 5
*****
The semigroup #1035
1 1 1 1 5
1 1 2 2 5
1 2 3 3 5
1 2 3 3 5
5 5 5 5 1
has #2 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 3 4 5
S1: 1 2 5
*****
The semigroup #1036
1 1 1 1 5
1 1 2 2 5
1 2 3 3 5
1 2 3 4 5
5 5 5 5 1
has #2 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 3 4 5

```

```

S1: 1 2 5
*****
The semigroup #1038
1 1 1 1 5
1 1 2 2 5
1 2 3 4 5
1 2 4 3 5
5 5 5 5 1
has #3 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 3 4 5
S1: 1 2 5
Resonance #3
S0: 1 2 3 5
S1: 1 2 4 5
*****
The semigroup #1039
1 1 1 1 5
1 2 1 1 5
1 1 3 1 5
1 1 1 4 5
5 5 5 5 1
has #1 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
*****
The semigroup #1040
1 1 1 1 5
1 2 1 1 5
1 1 3 3 5
1 1 3 3 5
5 5 5 5 1
has #2 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 2 3 5
S1: 1 3 4 5
*****
The semigroup #1041
1 1 1 1 5
1 2 1 1 5
1 1 3 3 5
1 1 3 4 5
5 5 5 5 1
has #1 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
*****
The semigroup #1043
1 1 1 1 5

```

```

1 2 1 1 5
1 1 3 4 5
1 1 4 3 5
5 5 5 5 1
has #3 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 2 3 5
S1: 1 4 5
Resonance #3
S0: 1 2 3 5
S1: 1 2 4 5
*****
The semigroup #1044
1 1 1 1 5
1 2 1 2 5
1 1 3 3 5
1 2 3 4 5
5 5 5 5 1
has #1 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
*****
The semigroup #1045
1 1 1 1 5
1 2 2 2 5
1 2 2 2 5
1 2 2 2 5
5 5 5 5 1
has #3 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #3
S0: 1 2 3 5
S1: 1 2 4 5
*****
The semigroup #1046
1 1 1 1 5
1 2 2 2 5
1 2 2 2 5
1 2 2 3 5
5 5 5 5 1
has #2 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 2 3 5
S1: 1 2 4 5
*****

```

```

The semigroup #1047
1 1 1 1 5
1 2 2 2 5
1 2 2 2 5
1 2 2 4 5
5 5 5 5 1
has #2 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 2 4 5
S1: 1 2 3 5
*****

The semigroup #1050
1 1 1 1 5
1 2 2 2 5
1 2 2 3 5
1 2 3 4 5
5 5 5 5 1
has #2 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 2 4 5
S1: 1 2 3 5
*****

The semigroup #1051
1 1 1 1 5
1 2 2 2 5
1 2 3 2 5
1 2 2 4 5
5 5 5 5 1
has #1 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
*****

The semigroup #1053
1 1 1 1 5
1 2 2 2 5
1 2 3 3 5
1 2 3 3 5
5 5 5 5 1
has #1 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
*****

The semigroup #1054
1 1 1 1 5
1 2 2 2 5
1 2 3 3 5
1 2 3 4 5
5 5 5 5 1
has #1 resonances.

```

```

Resonance #1
S0: 1 2 3 4
S1: 5
*****
The semigroup #1056
1 1 1 1 5
1 2 2 2 5
1 2 3 4 5
1 2 4 3 5
5 5 5 5 1
has #2 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 2 3 5
S1: 1 2 4 5
*****
The semigroup #1059
1 1 1 1 5
1 2 2 4 5
1 2 2 4 5
1 4 4 2 5
5 5 5 5 1
has #2 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 2 3 5
S1: 1 4 5
*****
The semigroup #1060
1 1 1 1 5
1 2 2 4 5
1 2 3 4 5
1 4 4 2 5
5 5 5 5 1
has #2 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
Resonance #2
S0: 1 2 3 5
S1: 1 4 5
*****
The semigroup #1061
1 1 1 1 5
1 2 3 3 5
1 3 2 2 5
1 3 2 2 5
5 5 5 5 1
has #2 resonances.
Resonance #1
S0: 1 2 5
S1: 1 3 4 5
Resonance #2

```

```

S0: 1 2 3 4
S1: 5
*****
The semigroup #1062
1 1 1 1 5
1 2 3 4 5
1 3 4 2 5
1 4 2 3 5
5 5 5 5 1
has #1 resonances.
Resonance #1
S0: 1 2 3 4
S1: 5
*****
The semigroup #1063
1 1 1 4 4
1 1 1 4 4
1 1 1 4 4
4 4 4 1 1
4 4 4 1 1
has #13 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2
S0: 1 4 5
S1: 1 2 3 4
Resonance #3
S0: 1 3 4
S1: 1 2 4 5
Resonance #4
S0: 1 2 4
S1: 1 3 4 5
Resonance #5
S0: 1 3 4 5
S1: 1 2 4
Resonance #6
S0: 1 2 4 5
S1: 1 3 4
Resonance #7
S0: 1 2 3 4
S1: 1 4 5
Resonance #8
S0: 1 3 4 5
S1: 1 2 4 5
Resonance #9
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #10
S0: 1 2 4 5
S1: 1 3 4 5
Resonance #11
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #12
S0: 1 2 3 4
S1: 1 3 4 5

```

Resonance #13
S0: 1 2 3 4
S1: 1 2 4 5

The semigroup #1064

1 1 1 4 4
1 1 1 4 4
1 1 1 4 4
4 4 4 1 1
4 4 4 1 2
has #7 resonances.

Resonance #1

S0: 1 2 3
S1: 4 5

Resonance #2

S0: 1 2 4
S1: 1 3 4 5

Resonance #3

S0: 1 2 4 5
S1: 1 3 4

Resonance #4

S0: 1 2 3 4
S1: 1 4 5

Resonance #5

S0: 1 2 4 5
S1: 1 2 3 4

Resonance #6

S0: 1 2 3 4
S1: 1 3 4 5

Resonance #7

S0: 1 2 3 4
S1: 1 2 4 5

The semigroup #1065

1 1 1 4 4
1 1 1 4 4
1 1 2 4 4
4 4 4 1 1
4 4 4 1 1
has #7 resonances.

Resonance #1

S0: 1 2 3
S1: 4 5

Resonance #2

S0: 1 2 4
S1: 1 3 4 5

Resonance #3

S0: 1 2 4 5
S1: 1 3 4

Resonance #4

S0: 1 2 3 4
S1: 1 4 5

Resonance #5

S0: 1 2 4 5
S1: 1 3 4 5

Resonance #6

S0: 1 2 4 5

S1: 1 2 3 4
 Resonance #7
 S0: 1 2 3 4
 S1: 1 2 4 5

The semigroup #1066

1 1 1 4 4
 1 1 1 4 4
 1 1 2 4 4
 4 4 4 1 1
 4 4 4 1 2

has #6 resonances.

Resonance #1

S0: 1 2 3

S1: 4 5

Resonance #2

S0: 1 2 4

S1: 1 3 4 5

Resonance #3

S0: 1 2 4 5

S1: 1 3 4

Resonance #4

S0: 1 2 3 4

S1: 1 4 5

Resonance #5

S0: 1 2 4 5

S1: 1 2 3 4

Resonance #6

S0: 1 2 3 4

S1: 1 2 4 5

The semigroup #1067

1 1 1 4 4
 1 1 1 4 4
 1 1 3 4 4
 4 4 4 1 1
 4 4 4 1 1

has #8 resonances.

Resonance #1

S0: 1 2 3

S1: 4 5

Resonance #2

S0: 1 3 4

S1: 1 2 4 5

Resonance #3

S0: 1 3 4 5

S1: 1 2 4

Resonance #4

S0: 1 2 3 4

S1: 1 4 5

Resonance #5

S0: 1 3 4 5

S1: 1 2 4 5

Resonance #6

S0: 1 3 4 5

S1: 1 2 3 4

Resonance #7


```

S0: 1 2 3 4
S1: 1 3 4 5
Resonance #8
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #1068
1 1 1 4 4
1 1 1 4 4
1 1 3 4 4
4 4 4 1 1
4 4 4 1 2
has #4 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2
S0: 1 2 3 4
S1: 1 4 5
Resonance #3
S0: 1 2 3 4
S1: 1 3 4 5
Resonance #4
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #1070
1 1 1 4 4
1 1 1 4 4
1 1 3 4 5
4 4 4 1 1
4 4 5 1 1
has #6 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2
S0: 1 3 4
S1: 1 2 4 5
Resonance #3
S0: 1 3 4 5
S1: 1 2 4
Resonance #4
S0: 1 2 3 4
S1: 1 4 5
Resonance #5
S0: 1 3 4 5
S1: 1 2 4 5
Resonance #6
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #1071
1 1 1 4 4
1 1 1 4 4
1 1 3 4 5
4 4 4 1 1

```

```

4 4 5 1 3
has #5 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2
S0: 1 3 4
S1: 1 2 4 5
Resonance #3
S0: 1 3 4 5
S1: 1 2 4
Resonance #4
S0: 1 2 3 4
S1: 1 4 5
Resonance #5
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #1078
1 1 1 4 4
1 1 2 4 4
1 2 3 4 4
4 4 4 1 1
4 4 4 1 1
has #6 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2
S0: 1 3 4
S1: 1 2 4 5
Resonance #3
S0: 1 3 4 5
S1: 1 2 4
Resonance #4
S0: 1 2 3 4
S1: 1 4 5
Resonance #5
S0: 1 3 4 5
S1: 1 2 4 5
Resonance #6
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #1080
1 1 1 4 4
1 1 2 4 4
1 2 3 4 5
4 4 4 1 1
4 4 5 1 1
has #6 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2
S0: 1 3 4
S1: 1 2 4 5

```

```

Resonance #3
S0: 1 3 4 5
S1: 1 2 4
Resonance #4
S0: 1 2 3 4
S1: 1 4 5
Resonance #5
S0: 1 3 4 5
S1: 1 2 4 5
Resonance #6
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #1081
1 1 1 4 4
1 1 2 4 4
1 2 3 4 5
4 4 4 1 1
4 4 5 1 2
has #3 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2
S0: 1 2 3 4
S1: 1 4 5
Resonance #3
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #1082
1 1 1 4 4
1 2 1 4 4
1 1 3 4 4
4 4 4 1 1
4 4 4 1 1
has #4 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2
S0: 1 2 3 4
S1: 1 4 5
Resonance #3
S0: 1 2 3 4
S1: 1 3 4 5
Resonance #4
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #1084
1 1 1 4 4
1 2 1 4 4
1 1 3 4 5
4 4 4 1 1
4 4 5 1 1
has #3 resonances.

```

```

Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2
S0: 1 2 3 4
S1: 1 4 5
Resonance #3
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #1085
1 1 1 4 4
1 2 1 4 4
1 1 3 4 5
4 4 4 1 1
4 4 5 1 3
has #3 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2
S0: 1 2 3 4
S1: 1 4 5
Resonance #3
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #1090
1 1 1 4 4
1 2 2 4 4
1 2 2 4 4
4 4 4 1 1
4 4 4 1 1
has #4 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2
S0: 1 2 3 4
S1: 1 4 5
Resonance #3
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #4
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #1092
1 1 1 4 4
1 2 2 4 4
1 2 3 4 4
4 4 4 1 1
4 4 4 1 1
has #3 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5

```

```

Resonance #2
S0: 1 2 3 4
S1: 1 4 5
Resonance #3
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #1095
1 1 1 4 4
1 2 2 4 4
1 2 3 4 5
4 4 4 1 1
4 4 5 1 1
has #3 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2
S0: 1 2 3 4
S1: 1 4 5
Resonance #3
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #1099
1 1 1 4 4
1 2 2 4 5
1 2 2 4 5
4 4 4 1 1
4 5 5 1 1
has #2 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2
S0: 1 2 3 4
S1: 1 4 5
*****
The semigroup #1100
1 1 1 4 4
1 2 2 4 5
1 2 2 4 5
4 4 4 1 1
4 5 5 1 2
has #2 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2
S0: 1 2 3 4
S1: 1 4 5
*****
The semigroup #1101
1 1 1 4 4
1 2 2 4 5
1 2 3 4 5
4 4 4 1 1

```

```

4 5 5 1 1
has #2 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2
S0: 1 2 3 4
S1: 1 4 5
*****
The semigroup #1102
1 1 1 4 4
1 2 2 4 5
1 2 3 4 5
4 4 4 1 1
4 5 5 1 2
has #2 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2
S0: 1 2 3 4
S1: 1 4 5
*****
The semigroup #1105
1 1 1 4 4
1 2 3 4 4
1 3 2 4 4
4 4 4 1 1
4 4 4 1 1
has #5 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2
S0: 1 2 4
S1: 1 3 4 5
Resonance #3
S0: 1 2 4 5
S1: 1 3 4
Resonance #4
S0: 1 2 3 4
S1: 1 4 5
Resonance #5
S0: 1 2 4 5
S1: 1 3 4 5
*****
The semigroup #1107
1 1 1 4 4
1 2 3 4 5
1 3 2 4 5
4 4 4 1 1
4 5 5 1 1
has #3 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
Resonance #2

```

```

S0: 1 2 3 4
S1: 1 4 5
Resonance #3
S0: 1 2 4 5
S1: 1 3 4 5
*****
The semigroup #1110
1 1 1 4 5
1 1 1 4 5
1 1 1 4 5
4 4 4 5 1
5 5 5 1 4
has #2 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2 4 5
Resonance #2
S0: 1 2 4 5
S1: 1 3 4 5
*****
The semigroup #1111
1 1 1 4 5
1 1 1 4 5
1 1 2 4 5
4 4 4 5 1
5 5 5 1 4
has #1 resonances.
Resonance #1
S0: 1 2 4 5
S1: 1 3 4 5
*****
The semigroup #1112
1 1 1 4 5
1 1 1 4 5
1 1 3 4 5
4 4 4 5 1
5 5 5 1 4
has #1 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2 4 5
*****
The semigroup #1114
1 1 1 4 5
1 1 2 4 5
1 2 3 4 5
4 4 4 5 1
5 5 5 1 4
has #1 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2 4 5
*****
The semigroup #1119
1 1 1 4 5
1 2 3 4 5
1 3 2 4 5

```

```

4 4 4 5 1
5 5 5 1 4
has #1 resonances.
Resonance #1
S0: 1 2 4 5
S1: 1 3 4 5
*****
The semigroup #1120
1 1 3 3 3
1 1 3 3 3
3 3 1 1 1
3 3 1 1 1
3 3 1 1 1
has #13 resonances.
Resonance #1
S0: 1 2
S1: 3 4 5
Resonance #2
S0: 1 3 5
S1: 1 2 3 4
Resonance #3
S0: 1 3 4
S1: 1 2 3 5
Resonance #4
S0: 1 2 3
S1: 1 3 4 5
Resonance #5
S0: 1 3 4 5
S1: 1 2 3
Resonance #6
S0: 1 2 3 5
S1: 1 3 4
Resonance #7
S0: 1 2 3 4
S1: 1 3 5
Resonance #8
S0: 1 3 4 5
S1: 1 2 3 5
Resonance #9
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #10
S0: 1 2 3 5
S1: 1 3 4 5
Resonance #11
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #12
S0: 1 2 3 4
S1: 1 3 4 5
Resonance #13
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #1121
1 1 3 3 3
1 1 3 3 3

```



```

3 3 1 1 1
3 3 1 1 1
3 3 1 1 2
has #7 resonances.
Resonance #1
S0: 1 2
S1: 3 4 5
Resonance #2
S0: 1 2 3
S1: 1 3 4 5
Resonance #3
S0: 1 2 3 5
S1: 1 3 4
Resonance #4
S0: 1 2 3 4
S1: 1 3 5
Resonance #5
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #6
S0: 1 2 3 4
S1: 1 3 4 5
Resonance #7
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #1125
1 1 3 3 3
1 1 3 3 3
3 3 1 1 1
3 3 1 1 2
3 3 1 2 1
has #6 resonances.
Resonance #1
S0: 1 2
S1: 3 4 5
Resonance #2
S0: 1 3 5
S1: 1 2 3 4
Resonance #3
S0: 1 3 4
S1: 1 2 3 5
Resonance #4
S0: 1 2 3
S1: 1 3 4 5
Resonance #5
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #6
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #1126
1 1 3 3 3
1 1 3 3 3
3 3 1 1 1
3 3 1 1 2

```

```

3 3 1 2 2
has #4 resonances.
Resonance #1
S0: 1 2
S1: 3 4 5
Resonance #2
S0: 1 2 3
S1: 1 3 4 5
Resonance #3
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #4
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #1127
1 1 3 3 3
1 1 3 3 3
3 3 1 1 1
3 3 1 2 1
3 3 1 1 2
has #6 resonances.
Resonance #1
S0: 1 2
S1: 3 4 5
Resonance #2
S0: 1 2 3
S1: 1 3 4 5
Resonance #3
S0: 1 2 3 5
S1: 1 3 4
Resonance #4
S0: 1 2 3 4
S1: 1 3 5
Resonance #5
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #6
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #1129
1 1 3 3 3
1 1 3 3 3
3 3 1 1 1
3 3 1 2 2
3 3 1 2 2
has #4 resonances.
Resonance #1
S0: 1 2
S1: 3 4 5
Resonance #2
S0: 1 2 3
S1: 1 3 4 5
Resonance #3
S0: 1 2 3 5
S1: 1 2 3 4

```

```

Resonance #4
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #1130
1 1 3 3 3
1 1 3 3 4
3 3 1 1 1
3 3 1 1 1
3 4 1 1 1
has #6 resonances.
Resonance #1
S0: 1 2
S1: 3 4 5
Resonance #2
S0: 1 3 5
S1: 1 2 3 4
Resonance #3
S0: 1 3 4
S1: 1 2 3 5
Resonance #4
S0: 1 2 3
S1: 1 3 4 5
Resonance #5
S0: 1 3 4 5
S1: 1 2 3 4
Resonance #6
S0: 1 2 3 4
S1: 1 3 4 5
*****
The semigroup #1131
1 1 3 3 3
1 1 3 3 4
3 3 1 1 1
3 3 1 1 1
3 4 1 1 2
has #3 resonances.
Resonance #1
S0: 1 2
S1: 3 4 5
Resonance #2
S0: 1 2 3
S1: 1 3 4 5
Resonance #3
S0: 1 2 3 4
S1: 1 3 4 5
*****
The semigroup #1132
1 1 3 3 3
1 2 3 3 3
3 3 1 1 1
3 3 1 1 1
3 3 1 1 1
has #8 resonances.
Resonance #1
S0: 1 2
S1: 3 4 5

```

```

Resonance #2
S0: 1 2 3
S1: 1 3 4 5
Resonance #3
S0: 1 2 3 5
S1: 1 3 4
Resonance #4
S0: 1 2 3 4
S1: 1 3 5
Resonance #5
S0: 1 2 3 5
S1: 1 3 4 5
Resonance #6
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #7
S0: 1 2 3 4
S1: 1 3 4 5
Resonance #8
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #1136
1 1 3 3 3
1 2 3 3 5
3 3 1 1 1
3 3 1 1 1
3 5 1 1 1
has #6 resonances.
Resonance #1
S0: 1 2
S1: 3 4 5
Resonance #2
S0: 1 2 3
S1: 1 3 4 5
Resonance #3
S0: 1 2 3 5
S1: 1 3 4
Resonance #4
S0: 1 2 3 4
S1: 1 3 5
Resonance #5
S0: 1 2 3 5
S1: 1 3 4 5
Resonance #6
S0: 1 2 3 4
S1: 1 3 4 5
*****
The semigroup #1137
1 1 3 3 3
1 2 3 3 5
3 3 1 1 1
3 3 1 1 1
3 5 1 1 2
has #5 resonances.
Resonance #1
S0: 1 2

```

```

S1: 3 4 5
Resonance #2
S0: 1 2 3
S1: 1 3 4 5
Resonance #3
S0: 1 2 3 5
S1: 1 3 4
Resonance #4
S0: 1 2 3 4
S1: 1 3 5
Resonance #5
S0: 1 2 3 4
S1: 1 3 4 5
*****
The semigroup #1140
1 1 3 3 3
1 2 3 4 4
3 3 1 1 1
3 4 1 1 1
3 4 1 1 1
has #3 resonances.
Resonance #1
S0: 1 2
S1: 3 4 5
Resonance #2
S0: 1 2 3
S1: 1 3 4 5
Resonance #3
S0: 1 2 3 4
S1: 1 3 4 5
*****
The semigroup #1142
1 1 3 3 3
1 2 3 4 4
3 3 1 1 1
3 4 1 2 2
3 4 1 2 2
has #2 resonances.
Resonance #1
S0: 1 2
S1: 3 4 5
Resonance #2
S0: 1 2 3
S1: 1 3 4 5
*****
The semigroup #1143
1 1 3 3 3
1 2 3 4 5
3 3 1 1 1
3 4 1 1 1
3 5 1 1 1
has #6 resonances.
Resonance #1
S0: 1 2
S1: 3 4 5
Resonance #2
S0: 1 2 3

```

```

S1: 1 3 4 5
Resonance #3
S0: 1 2 3 5
S1: 1 3 4
Resonance #4
S0: 1 2 3 4
S1: 1 3 5
Resonance #5
S0: 1 2 3 5
S1: 1 3 4 5
Resonance #6
S0: 1 2 3 4
S1: 1 3 4 5
*****
The semigroup #1145
1 1 3 3 5
1 1 3 3 5
3 3 5 5 1
3 3 5 5 1
5 5 1 1 3
has #2 resonances.
Resonance #1
S0: 1 3 4 5
S1: 1 2 3 5
Resonance #2
S0: 1 2 3 5
S1: 1 3 4 5
*****
The semigroup #1146
1 1 3 3 5
1 2 3 3 5
3 3 5 5 1
3 3 5 5 1
5 5 1 1 3
has #1 resonances.
Resonance #1
S0: 1 2 3 5
S1: 1 3 4 5
*****
The semigroup #1148
1 1 3 3 5
1 2 3 4 5
3 3 5 5 1
3 4 5 5 1
5 5 1 1 3
has #1 resonances.
Resonance #1
S0: 1 2 3 5
S1: 1 3 4 5
*****
The semigroup #1149
1 1 3 4 5
1 1 3 4 5
3 3 1 5 4
4 4 5 1 3
5 5 4 3 1
has #3 resonances.

```

```

Resonance #1
S0: 1 2 5
S1: 3 4
Resonance #2
S0: 1 2 4
S1: 3 5
Resonance #3
S0: 1 2 3
S1: 4 5
*****
The semigroup #1150
1 1 3 4 5
1 1 3 4 5
3 3 1 5 4
4 4 5 3 1
5 5 4 1 3
has #1 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
*****
The semigroup #1151
1 1 3 4 5
1 2 3 4 5
3 3 1 5 4
4 4 5 1 3
5 5 4 3 1
has #3 resonances.
Resonance #1
S0: 1 2 5
S1: 3 4
Resonance #2
S0: 1 2 4
S1: 3 5
Resonance #3
S0: 1 2 3
S1: 4 5
*****
The semigroup #1152
1 1 3 4 5
1 2 3 4 5
3 3 1 5 4
4 4 5 3 1
5 5 4 1 3
has #1 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
*****
The semigroup #1153
1 2 2 2 2
2 1 1 1 1
2 1 1 1 1
2 1 1 1 1
2 1 1 1 1
has #13 resonances.
Resonance #1

```

```

S0: 1
S1: 2 3 4 5
Resonance #2
S0: 1 2 5
S1: 1 2 3 4
Resonance #3
S0: 1 2 4
S1: 1 2 3 5
Resonance #4
S0: 1 2 3
S1: 1 2 4 5
Resonance #5
S0: 1 2 4 5
S1: 1 2 3
Resonance #6
S0: 1 2 3 5
S1: 1 2 4
Resonance #7
S0: 1 2 3 4
S1: 1 2 5
Resonance #8
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #9
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #10
S0: 1 2 3 5
S1: 1 2 4 5
Resonance #11
S0: 1 2 3 5
S1: 1 2 3 4
Resonance #12
S0: 1 2 3 4
S1: 1 2 4 5
Resonance #13
S0: 1 2 3 4
S1: 1 2 3 5
*****
The semigroup #1154
1 2 2 2 5
2 5 5 5 1
2 5 5 5 1
2 5 5 5 1
5 1 1 1 2
has #2 resonances.
Resonance #1
S0: 1 2 4 5
S1: 1 2 3 5
Resonance #2
S0: 1 2 3 5
S1: 1 2 4 5
*****
The semigroup #1155
1 2 2 4 4
2 4 4 1 1
2 4 4 1 1

```



```

4 1 1 2 2
4 1 1 2 2
has #2 resonances.
Resonance #1
S0: 1 2 4 5
S1: 1 2 3 4
Resonance #2
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #1156
1 2 2 4 4
2 4 4 1 1
2 4 4 1 1
4 1 1 2 2
4 1 1 2 3
has #1 resonances.
Resonance #1
S0: 1 2 3 4
S1: 1 2 4 5
*****
The semigroup #1157
1 2 2 4 5
2 1 1 5 4
2 1 1 5 4
4 5 5 1 2
5 4 4 2 1
has #3 resonances.
Resonance #1
S0: 1 5
S1: 2 3 4
Resonance #2
S0: 1 4
S1: 2 3 5
Resonance #3
S0: 1 2 3
S1: 4 5
*****
The semigroup #1158
1 2 2 4 5
2 1 1 5 4
2 1 1 5 4
4 5 5 2 1
5 4 4 1 2
has #1 resonances.
Resonance #1
S0: 1 2 3
S1: 4 5
*****
The semigroup #1159
1 2 2 4 5
2 4 4 5 1
2 4 4 5 1
4 5 5 1 2
5 1 1 2 4
has #1 resonances.
Resonance #1

```

S0: 1 4

S1: 2 3 5

There are 299 semigroups with at least one resonance and there are in total 1653 different resonances.