

We introduce the structure constants of sl2
We show the Killing-Cartan metric

```
-8.00 0.00 0.00
0.00 8.00 0.00
0.00 0.00 8.00
```

and its determinant
-512.0

In what follows we expand sl2 with all the abelian semigroups of order 5 having zero element and identify the ones that leads to a semisimple algebra.

A semisimple algebra has been found, expanding with the semigroup #680

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

whose zero element is: 1.

The metric of the reduced algebra is:

```
-8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00
```

and its determinant
6.8719476736E10

A semisimple algebra has been found, expanding with the semigroup #683

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

whose zero element is: 1.

The metric of the reduced algebra is:

```
-8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 -8.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00
```

and its determinant

6.8719476736E10

A semisimple algebra has been found, expanding with 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

whose zero element is: 1.

The metric of the reduced algebra is:

-8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	-16.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	-16.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	16.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.00	0.00

and its determinant

4.398046511104E12

A semisimple algebra has been found, expanding with the semigroup #689

1 1 1 1 1

1 2 1 1 1

1 1 3 1 3

1 1 1 4 4

1 1 3 4 5

whose zero element is: 1.

The metric of the reduced algebra is:

-8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-8.00	0.00	-8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	-8.00	-8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	-8.00	-8.00	-24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	8.00	0.00	8.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	8.00	8.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	24.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	0.00	8.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	8.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	8.00	24.00	0.00

and its determinant

6.8719476736E10

A semisimple algebra has been found, expanding with the semigroup #704

1 1 1 1 1

1 2 1 1 1

1 1 3 3 3

1 1 3 4 3

1 1 3 3 5

whose zero element is: 1.

The metric of the reduced algebra is:

```

-8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 -16.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 -8.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 16.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 8.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 16.00

```

and its determinant

6.8719476736E10

A semisimple algebra has been found, expanding with the semigroup #707

```

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

```

whose zero element is: 1.

The metric of the reduced algebra is:

```

-8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 -16.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 -16.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 16.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 16.00 24.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 16.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 24.00

```

and its determinant

6.8719476736E10

A semisimple algebra has been found, expanding with 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

```

whose zero element is: 1.

The metric of the reduced algebra is:

```

-8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 -24.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 -8.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 24.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 8.00 24.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 24.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 24.00

```

and its determinant

4.398046511104E12

A semisimple algebra has been found, expanding with 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

whose zero element is: 1.

The metric of the reduced algebra is:

```
-8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -16.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -16.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 16.00 16.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 16.00 24.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 16.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 24.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00
```

and its determinant

4.398046511104E12

A semisimple algebra has been found, expanding with the semigroup #722

1 1 1 1 1

1 2 1 1 1

1 1 3 4 5

1 1 4 5 3

1 1 5 3 4

whose zero element is: 1.

The metric of the reduced algebra is:

```
-8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 24.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 24.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 24.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 24.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 24.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 24.00 0.00
```

and its determinant

-1.352605460594688E15

A semisimple algebra has been found, expanding with the semigroup #734

1 1 1 1 1

1 2 1 1 2

1 1 3 1 3

1 1 1 4 4

1 2 3 4 5

whose zero element is: 1.

The metric of the reduced algebra is:

```
-8.00 0.00 0.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 0.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -8.00 -8.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 0.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 8.00 32.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 32.00
```

and its determinant

6.8719476736E10

A semisimple algebra has been found, expanding with the semigroup #740

1 1 1 1 1

1 2 1 1 2

1 1 3 3 1

1 1 3 4 1

1 2 1 1 5

whose zero element is: 1.

The metric of the reduced algebra is:

```
-8.00 0.00 0.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 0.00 0.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 8.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 16.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 0.00 0.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 16.00
```

and its determinant

6.8719476736E10

A semisimple algebra has been found, expanding with the semigroup #746

1 1 1 1 1

1 2 1 1 2

1 1 3 3 3

1 1 3 4 3

1 2 3 3 5

whose zero element is: 1.

The metric of the reduced algebra is:

```

-8.00 0.00 0.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 -16.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -8.00 -8.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 16.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 8.00 24.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 24.00

```

and its determinant

6.8719476736E10

A semisimple algebra has been found, expanding with the semigroup #747

```

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

```

whose zero element is: 1.

The metric of the reduced algebra is:

```

-8.00 0.00 0.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 -16.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -8.00 -16.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 16.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 16.00 32.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 16.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 16.00 32.00

```

and its determinant

6.8719476736E10

A semisimple algebra has been found, expanding with 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

```

whose zero element is: 1.

The metric of the reduced algebra is:

```

-8.00 0.00 0.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 0.00 0.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 16.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 16.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 0.00 0.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 16.00

```

and its determinant

4.398046511104E12

A semisimple algebra has been found, expanding with 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

whose zero element is: 1.

The metric of the reduced algebra is:

```
-8.00 0.00 0.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -16.00 0.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -16.00 0.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 0.00 0.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 16.00 0.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 16.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 16.00 0.00 32.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 0.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 0.00 16.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 0.00 32.00
```

and its determinant

4.398046511104E12

A semisimple algebra has been found, expanding with 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

whose zero element is: 1.

The metric of the reduced algebra is:

```
-16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 16.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 16.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00
```

and its determinant

2.81474976710656E14

A semisimple algebra has been found, expanding with the semigroup #777

1 1 1 1 1

1 2 1 2 2

1 1 3 3 3

1 2 3 4 4

1 2 3 4 5

whose zero element is: 1.

The metric of the reduced algebra is:

```
-8.00 0.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -8.00 -24.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -8.00 -24.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 0.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 24.00 24.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 24.00 32.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 24.00 24.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 24.00 32.00
```

and its determinant

6.8719476736E10

A semisimple algebra has been found, expanding with 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

whose zero element is: 1.

The metric of the reduced algebra is:

```
-8.00 0.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -8.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -8.00 -32.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -8.00 -16.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 0.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 32.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 16.00 32.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 0.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 32.00 16.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 16.00 32.00
```

and its determinant

4.398046511104E12

A semisimple algebra has been found, expanding with the semigroup #893

1 1 1 1 1

1 2 2 2 2

1 2 3 2 2

1 2 2 4 2

1 2 2 2 5

whose zero element is: 1.

The metric of the reduced algebra is:


```

-8.00 -8.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -16.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -8.00 -16.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -8.00 -8.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 16.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 16.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 8.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 16.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 16.00

```

and its determinant

6.8719476736E10

A semisimple algebra has been found, expanding with the semigroup #896

```

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

```

whose zero element is: 1.

The metric of the reduced algebra is:

```

-8.00 -8.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -16.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -8.00 -16.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -8.00 -16.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 16.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 16.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 16.00 24.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 16.00 16.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 16.00 24.00

```

and its determinant

6.8719476736E10

A semisimple algebra has been found, expanding with 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

```

whose zero element is: 1.

The metric of the reduced algebra is:

```

-8.00 -8.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -16.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -8.00 -24.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -8.00 -8.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 16.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 24.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 8.00 24.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 24.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 24.00

```

and its determinant

4.398046511104E12

A semisimple algebra has been found, expanding with the semigroup #902

1 1 1 1 1

1 2 2 2 2

1 2 3 2 3

1 2 2 4 4

1 2 3 4 5

whose zero element is: 1.

The metric of the reduced algebra is:

```
-8.00 -8.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -16.00 -8.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -8.00 -16.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -16.00 -16.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 16.00 8.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 16.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 16.00 16.00 32.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 8.00 16.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 16.00 16.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 16.00 32.00
```

and its determinant

6.8719476736E10

A semisimple algebra has been found, expanding with the semigroup #917

1 1 1 1 1

1 2 2 2 2

1 2 3 3 3

1 2 3 4 3

1 2 3 3 5

whose zero element is: 1.

The metric of the reduced algebra is:

```
-8.00 -8.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -16.00 -16.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -16.00 -24.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -16.00 -16.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 16.00 16.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 16.00 24.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 16.00 16.00 24.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 16.00 16.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 24.00 16.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 16.00 24.00
```

and its determinant

6.8719476736E10

A semisimple algebra has been found, expanding with the semigroup #920

1 1 1 1 1

1 2 2 2 2

1 2 3 3 3

1 2 3 4 4

1 2 3 4 5

whose zero element is: 1.

The metric of the reduced algebra is:

```
-8.00 -8.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -16.00 -16.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -16.00 -24.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -16.00 -24.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 16.00 16.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 16.00 24.00 24.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 16.00 24.00 32.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 16.00 16.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 24.00 24.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 24.00 32.00
```

and its determinant

6.8719476736E10

A semisimple algebra has been found, expanding with 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

whose zero element is: 1.

The metric of the reduced algebra is:

```
-8.00 -8.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -16.00 -16.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -16.00 -32.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -16.00 -16.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 16.00 16.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 16.00 32.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 16.00 16.00 32.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 16.00 16.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 32.00 16.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 16.00 16.00 32.00
```

and its determinant

4.398046511104E12

A semisimple algebra has been found, expanding with 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

whose zero element is: 1.

The metric of the reduced algebra is:

```

-8.00 -8.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -24.00 -24.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -24.00 -32.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -8.00 -8.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 24.00 24.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 24.00 32.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 8.00 24.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 24.00 24.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 24.00 32.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 24.00

```

and its determinant

4.398046511104E12

A semisimple algebra has been found, expanding with the semigroup #933

```

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

```

whose zero element is: 1.

The metric of the reduced algebra is:

```

-8.00 -8.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -32.00 -8.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -8.00 -8.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-8.00 -8.00 -32.00 -8.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 32.00 8.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 8.00 32.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 8.00 8.00 32.00 8.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 32.00 8.00 8.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 8.00 32.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 8.00 8.00 32.00 8.00

```

and its determinant

-1.352605460594688E15

A semisimple algebra has been found, expanding with 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

```

whose zero element is: 1.

The metric of the reduced algebra is:

```

-16.00 -16.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-16.00 -24.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-16.00 -16.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 16.00 16.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 16.00 24.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 16.00 16.00 24.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 16.00 16.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 24.00 16.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 16.00 24.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00

```

and its determinant

4.398046511104E12

A semisimple algebra has been found, expanding with 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

whose zero element is: 1.

The metric of the reduced algebra is:

```
-16.00 -16.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-16.00 -24.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-16.00 -24.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 16.00 16.00 16.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 16.00 24.00 24.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 16.00 24.00 32.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 16.00 16.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 24.00 24.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 24.00 32.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00
```

and its determinant

4.398046511104E12

A semisimple algebra has been found, expanding with 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

whose zero element is: 1.

The metric of the reduced algebra is:

```
-16.00 -16.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-16.00 -32.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-16.00 -16.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 16.00 16.00 16.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 16.00 32.00 16.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 16.00 16.00 32.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 16.00 16.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 32.00 16.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 16.00 32.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00
```

and its determinant

2.81474976710656E14

A semisimple algebra has been found, expanding with 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

whose zero element is: 1.

The metric of the reduced algebra is:

```
-16.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-16.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 -16.00 -16.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 -16.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 16.00 16.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 16.00 32.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 16.00 16.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 16.00 32.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 16.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 32.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 16.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 16.00 32.00
```

and its determinant

2.81474976710656E14

A semisimple algebra has been found, expanding with the semigroup #979

1 1 1 1 1

1 2 2 4 5

1 2 3 4 5

1 4 4 5 2

1 5 5 2 4

whose zero element is: 1.

The metric of the reduced algebra is:

```
-24.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
-24.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 -24.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 24.00 24.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 24.00 32.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 24.00 24.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 24.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 24.00 24.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 24.00 32.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 24.00 24.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 24.00 0.00
```

and its determinant

-1.352605460594688E15

A semisimple algebra has been found, expanding with 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

whose zero element is: 1.

The metric of the reduced algebra is:

```

-32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 32.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 32.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 32.00

```

and its determinant
1.15292150460684698E18

A semisimple algebra has been found, expanding with 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

```

whose zero element is: 1.

The metric of the reduced algebra is:

```

-32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 -32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 32.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 32.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 32.00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 32.00

```

and its determinant
-1.15292150460684698E18

There are 226 semigroups of order 5 with zero element.
And 34 of them leads to a semisimple algebra.