2D Array - DS

Given a 6×6 *2D Array*, arr:

```
1 1 1 0 0 0
0 1 0 0 0 0
1 1 1 0 0 0
0 0 0 0 0 0
0 0 0 0 0 0
0 0 0 0 0 0
```

We define an hourglass in A to be a subset of values with indices falling in this pattern in arr's graphical representation:

```
a b c
  d
e f g
```

There are 16 hourglasses in arr, and an *hourglass sum* is the sum of an hourglass' values. Calculate the hourglass sum for every hourglass in arr, then print the *maximum* hourglass sum.

For example, given the 2D array:

```
-9 -9 -9  1 1 1 
 0 -9  0  4 3 2
-9 -9 -9  1 2 3
 0  0  8  6 6 0
 0  0  0 -2 0 0
 0  0  1  2 4 0
```

We calculate the following 16 hourglass values:

```
-63, -34, -9, 12, 
-10, 0, 28, 23, 
-27, -11, -2, 10, 
9, 17, 25, 18
```

Our highest hourglass value is 28 from the hourglass:

```
0 4 3
  1
8 6 6
```

Note: If you have already solved the Java domain's *Java 2D Array* challenge, you may wish to skip this challenge.

Function Description

Complete the function *hourglassSum* in the editor below. It should return an integer, the maximum hourglass sum in the array.

hourglassSum has the following parameter(s):

- *arr*: an array of integers

Input Format

Each of the 6 lines of inputs $arr[i]$ contains 6 space-separated integers $arr[i][j]$.

Constraints

- $-9 \le arr[i][j] \le 9$
- $0 \le i, j \le 5$

Output Format

Print the largest (maximum) hourglass sum found in arr.

Sample Input

```
1 1 1 0 0 0
0 1 0 0 0 0
1 1 1 0 0 0
0 0 2 4 4 0
0 0 0 2 0 0
0 0 1 2 4 0
```

Sample Output

```
19
```

Explanation

arr contains the following hourglasses:

```
1 1 1   1 1 0   1 0 0   0 0 0
  1       0       0       0
1 1 1   1 1 0   1 0 0   0 0 0

0 1 0   1 0 0   0 0 0   0 0 0
  1       1       0       0
0 0 2   0 2 4   2 4 4   4 4 0

1 1 1   1 1 0   1 0 0   0 0 0
  0       2       4       4
0 0 0   0 0 2   0 2 0   2 0 0

0 0 2   0 2 4   2 4 4   4 4 0
  0       0       2       0
0 0 1   0 1 2   1 2 4   2 4 0
```

The hourglass with the maximum sum (19) is:

```
2 4 4
  2
1 2 4
```