The solutions to the test cases are:

Test Case 1:

1, 1

3, 3

Test Case 2:

4, 1

6, 2

5, 4

Test Case 3:

1, -2

2, 0

2, 4

0, 5

-1, 3

-1, -1

Test Case 4:

3, 1

6, 2

5, 4

3, 6

1, 2

Test Case 5:

3, 1

12, 1

17, 2

10, 12

3, 12

1, 6

1, 3

Test Case 6:

5, 1

14, 1

17, 12

10, 18

6, 21

1, 16

1, 13

3, 5