

CS 589 - Homework 1 - Question 3

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
c1: a, b, c, d integer?	F	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
c2: a, b, c, d > 0	-	F	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
c3: a, b, c, d ≤ 1000	-	-	F	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
c4: b ≠ a	-	-	-	F	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
c5: h ² >0 (*)	-	-	-	-	F	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
c6: h = c or c ² + (b-a) ² = d ²	-	-	-	-	-	T	T	T	T	T	T	T	T	T	T	T	T	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
c7: h = d or d ² + (b-a) ² = c ²	-	-	-	-	-	T	F	F	F	F	F	F	F	F	F	F	F	T	T	T	T	T	T	T	T	T	T	T	T	T	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
c8: c = d	-	-	-	-	-	-	T	F	F	F	F	F	F	F	F	F	F	T	F	F	F	F	F	F	F	F	F	F	F	F	T	T	T	T	T	T	T	T	F	F	F	F	F	F	F	F	F	F	F	
c9: a = c	-	-	-	-	-	-	-	T	T	T	T	F	F	F	F	F	F	F	-	T	T	T	T	F	F	F	F	F	F	F	T	T	T	T	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
c10: a = d	-	-	-	-	-	-	-	T	F	F	F	T	T	T	F	F	F	F	-	T	F	F	F	T	T	T	F	F	F	F	T	T	T	T	F	F	F	F	F	T	T	T	F	F	F	F	F	F	F	
c11: b = c	-	-	-	-	-	-	-	-	T	F	F	T	F	F	T	T	F	F	-	-	T	F	F	T	F	F	T	T	F	F	T	F	F	-	-	T	T	F	F	-	T	F	F	T	T	F	F	F	F	
c12: b = d	-	-	-	-	-	-	-	-	-	T	F	-	T	F	T	F	T	F	-	-	-	T	F	-	T	F	T	F	T	F	-	T	F	-	-	T	F	T	F	-	-	T	F	-	T	F	T	F	T	F
a1: trapezoid											X			X		X	X	X					X			X		X	X	X			X			X				X			X	X	X	X	X	X		
a2: right trapezoid											X			X		X	X	X					X			X		X	X	X																				
a3: isosceles trapezoid																																	X			X														
a4: scalene trapezoid																		X																																X
a5: not trapezoid					X																																													
a6: invalid input	X	X	X	X																																														
a7: impossible						X	X	X	X	X		X	X		X				X	X	X	X		X	X		X				X	X		X	X		X	X		X	X		X	X		X				

$$(*) h = \frac{\sqrt{(-a+b+c+d)(a-b+c+d)(a-b+c-d)(a-b-c+d)}}{2 |b-a|}$$

<u>Colm #</u>	<u>Test Case</u>	<u>Inputs</u>				
		<u>a</u>	<u>b</u>	<u>c</u>	<u>d</u>	<u>Expected Outputs</u>
1	#1	12.5	18	13	14	invalid input
2	#2	-12	18	13	14	invalid input
3	#3	1200	1800	1300	1400	invalid input
4	#4	12	12	13	14	invalid input
5	#5	12	4	1	2	not trapezoid
6	no test case					
7	no test case					
8	no test case					
9	no test case					
10	no test case					
11	#6	3	7	3	5	trapezoid, right trapezoid
12	no test case					
13	no test case					
14	#7	5	8	4	5	trapezoid, right trapezoid
15	no test case					
16	#8	7	3	3	5	trapezoid, right trapezoid
17	#9	8	5	4	5	trapezoid, right trapezoid
18	#10	9	14	12	13	trapezoid, right trapezoid, scalene trapezoid
19	no test case					
20	no test case					
21	no test case					
22	no test case					
23	#11	5	8	5	4	trapezoid, right trapezoid
24	no test case					
25	no test case					
26	#12	3	7	5	3	trapezoid, right trapezoid
27	no test case					
28	#13	8	5	5	4	trapezoid, right trapezoid
29	#14	7	3	5	3	trapezoid, right trapezoid
30	#15	9	14	13	12	trapezoid, right trapezoid, scalene trapezoid
31	no test case					
32	no test case					
33	#16	5	11	5	5	trapezoid, isosceles trapezoid
34	no test case					
35	no test case					
36	#17	11	5	5	5	trapezoid, isosceles trapezoid

37	no test case					
38	no test case					
39	#18	6	14	5	5	trapezoid, isosceles trapezoid
40	no test case					
41	no test case					
42	no test case					
43	#19	29	77	29	35	trapezoid
44	no test case					
45	no test case					
46	#20	29	77	35	29	trapezoid
47	no test case					
48	#21	77	29	29	35	trapezoid
49	#22	77	29	35	29	trapezoid
50	#23	12	18	13	14	trapezoid, scalene trapezoid