

MATH 122
NUMBER OF SOLUTIONS FOR A TRIANGLE

In each of the following, indicate the number of triangles that can be constructed with the given sides and angles.

				Number of triangles		
				0	1	2
1.	$\alpha = 45^\circ$	$b = 6$	$c = 5$		x	
2.	$\alpha = 19^\circ$	$\beta = 47^\circ$	$c = 10$		x	
3.	$\alpha = 76^\circ$	$\beta = 42^\circ$	$b = 6$		x	
4.	$\alpha = 119^\circ$	$\beta = 71^\circ$	$b = 6$	x		
5.	$a = 2$	$b = 2$	$c = 4$	x		
6.	$a = 2$	$b = 2$	$c = 3$		x	
7.	$a = 10$	$b = 6$	$c = 12$		x	
8.	$\alpha = 45^\circ$	$b = 10$	$a = 8$			x
9.	$\gamma = 45^\circ$	$c = 5\sqrt{2}$	$a = 10$		x	
10.	$\beta = 45^\circ$	$c = 10$	$b = 10$		x	
11.	$\beta = 45^\circ$	$b = 12$	$c = 10$		x	
12.	$\beta = 45^\circ$	$b = 4$	$c = 10$	x		
13.	$\gamma = 130^\circ$	$c = 10$	$b = 5$		x	
14.	$\gamma = 130^\circ$	$c = 10$	$a = 6$		x	
15.	$\gamma = 130^\circ$	$c = 5$	$a = 6$	x		
16.	$\gamma = 130^\circ$	$c = 5$	$a = 5$	x		
17.	$\alpha = 60^\circ$	$b = 14$	$a = 7\sqrt{3}$		x	
18.	$\alpha = 60^\circ$	$b = 14$	$a = 8\sqrt{3}$			x
19.	$\alpha = 60^\circ$	$b = 14$	$a = 6\sqrt{3}$	x		
20.	$\alpha = 60^\circ$	$b = 14$	$a = 9\sqrt{3}$		x	

21. How many triangles can be constructed with the following angles:

$$\alpha = 100^\circ \quad \beta = 30.5^\circ \quad \gamma = 50.5^\circ ?$$

22. How many triangles can be constructed with the following angles:

$$\alpha = 70.3^\circ \quad \beta = 43.5^\circ \quad \gamma = 66.2^\circ ?$$

answers: 21. none 22. many