GPS Geometry

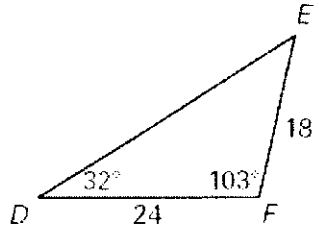
Name: _____ Date: _____

Triangle Inequalities, Side–Angle Inequality, Exterior Angle Inequality

Use the diagram to the right to answer questions 1 and 2.

1. Name the smallest and largest angles of ΔDEF.

2. Name the shortest and longest sides of ΔDEF.



Is it possible to construct a triangle with the given side lengths? If not, explain why not.

3. 6, 10, 15

4. 11, 16, 32

5. 4, 5, 9

Describe the possible lengths of the third side of the triangle given the lengths of the other two sides.

6. 12, 6

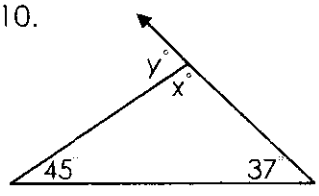
7. 3, 8

8. 12, 17

9. 7, 13

Find the values of the variables.

10.



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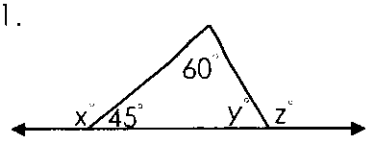

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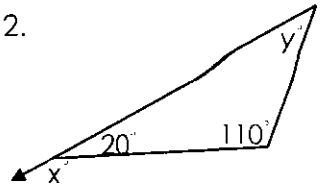

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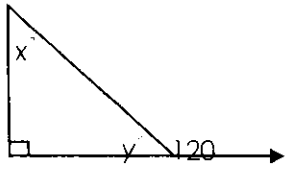

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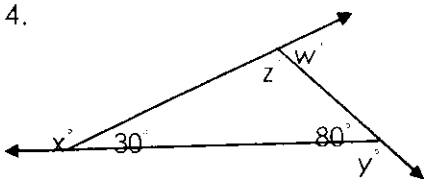

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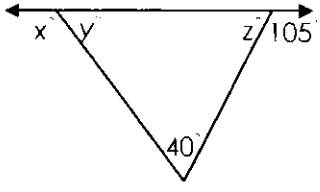


Geometry Congruence Triangle Inequalities

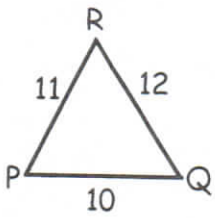
Can the following be the side lengths of a triangle?

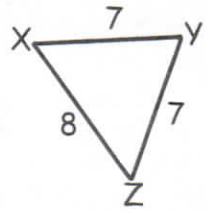
1. 25, 12, 12
2. 2, 3, 5
3. 4, 4, 9
4. 47, 36, 4
5. 82, 28, 82
6. 9, 9, 19
7. 27, 18, 9
8. 42, 24, 24

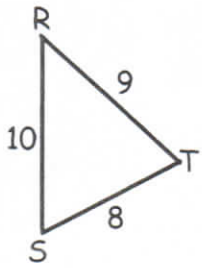
Fill in the chart.

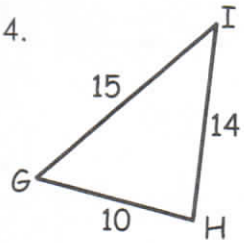
	lengths of two sides of a triangle	third side must be greater than	third side must be less than
1.	7 and 12		
2.	15 and 17		
3.	20 and 25		
4.	3 and 4		
5.	9 and 15		
6.	10 and 10		

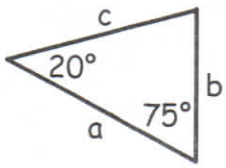
Which is the largest angle or longest side? Circle the letter.

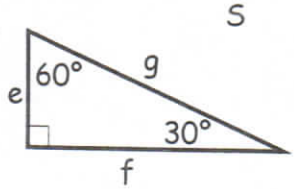
1. 

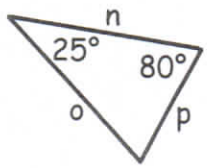
2. 

3. 

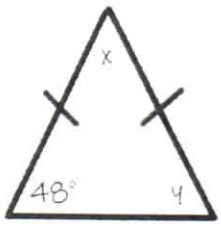
4. 

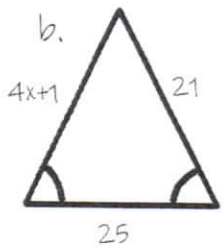
5. 

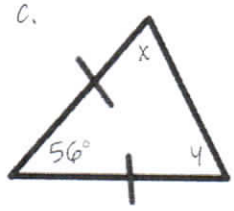
6. 

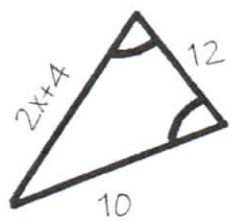
7. 

Examples: Solve for x and y. Use the base angle theorem.

a. 

b. 

c. 

d. 

x= _____ y= _____ x= _____ x=_____ y= _____ x = _____