Name: ..... Class: .....

Triangle inequality

For a given triangle with lengths **a, b and c**, **a, b and c** are the side lengths if and only if **a+b > c**

1. State if the three numbers given below can be the side lengths of a triangle.
9, 5 and 4

2. State if the three numbers given below can be the side lengths of a triangle.
7, 5 and 4

3. State if the three numbers given below can be the side lengths of a triangle.
17, 10 and 11

4. State if the three numbers given below can be the side lengths of a triangle.
3, 1 and 9

5. State if the three numbers given below can be the side lengths of a triangle.
7, 11 and 7

6. State if the three numbers given below can be the side lengths of a triangle.
13, 11 and 1

7. State if the three numbers given below can be the side lengths of a triangle.
7, 7 and 7

Solution

Name: ..... Class: .....

Triangle inequality

For a given triangle with lengths **a, b and c**, **a, b and c** are the side lengths if and only if **a+b > c**

1. State if the three numbers given below can be the side lengths of a triangle.
9, 5 and 4

- **Step 1:** Put the three numbers from smallest to largest.
  a = 4, b = 5 and c =9
- **Step 2:** Check whether **a+b > c**
  Since **4+5=9**, it is not true that **4+5>9**

→ So, these numbers are not the side lengths of a triangle. Therefore, the answer is:

NO

2. The answer is: **YES**

3. The answer is: **YES**

4. The answer is: **NO**

5. The answer is: **YES**

6. The answer is: **NO**

7. The answer is: **YES**