Complete each Inequality Theorem.

1) If one side of a triangle is longer than a second side, then the larger angle lies opposite the ____________ side.

2) If one angle of a triangle is larger than second angle, then the longer side lies opposite the ____________ angle.

3) The sum of the lengths of any two sides of a triangle is ____________ than the length of the third side.

Name the largest angle and the smallest angle of each triangle.

4) \[\begin{array}{c}
A \\
25 \\
27 \\
B \\
26 \\
C
\end{array}\]

5) \[\begin{array}{c}
A \\
25 \\
10 \\
B \\
20 \\
C
\end{array}\]

Name the largest angle and the smallest angle of each triangle.

6) \[\begin{array}{c}
B \\
68^\circ \\
A \\
70^\circ \\
C
\end{array}\]

7) \[\begin{array}{c}
B \\
120^\circ \\
A \\
29^\circ \\
C
\end{array}\]
Is it possible for a triangle to have the sides with the lengths indicated? Explain.

8) 3, 7, 8  
9) 1, 1, 4  
10) 9, 6, 2  

11) 3, 4, 5  
12) 2.4, 2.9, 5  
13) 3, 6, 10  

14) Two sides of a triangle have lengths of 10 and 13. The length of the third side can be any number between _____ and ______.

15) Two sides of a triangle have lengths of 5x and 11x. The length of the third side can be any number between _____ and ______.
Answer Key

1) longer
2) larger
3) greater
4) $\angle A; \angle B$
5) $\angle B; \angle C$
6) $\overline{BC}; \overline{BA}$
7) $\overline{BC}; \overline{BA}$
8) Yes
9) No
10) No
11) Yes
12) Yes
13) No
14) 23, 3
15) $16x, 6x$