

Name: _____

Date _____

Section 9.4 A – Triangle Inequality Theorem

Triangle Inequality Theorem

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

Example: Determine if the given side lengths form a triangle.

a) 4, 5, 10

b) 4, 5, 9

c) 4, 5, 7

Practice:

The triangle Inequality Theorem states that the sum of the lengths of any two sides of a triangle is greater than the length of the third side. Using this theorem, answer the following questions.

1) If two sides of a triangle are 1 and 3, the third side may be:

(a) 5

(b) 2

(c) 3

(d) 4

2) If the lengths of two sides of a triangle are 5 and 7, the length of the third side may *not* be:

(a) 12

(b) 7

(c) 3

(d) 5

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3) Which set of numbers may represent the lengths of the sides of a triangle?

(a) {2,5,9}

(b) {6,6,7}

(c) {6,4,2}

(d) {7,8,1}

4) If the lengths of two sides of a triangle are 4 and 10, which could be the length of the third side?

(a) 6

(b) 8

(c) 14

(d) 16

5) If the lengths of two sides of a triangle measure 7 and 12, the length of the third side could measure:

(a) 16

(b) 19

(c) 3

(d) 5

6) Two sides of an isosceles triangle have lengths 2 and 12, respectively. Find the length of the third side.

7) If the lengths of two sides of a triangle are 10 and 14, the length of the third side may be:

(a) 22

(b) 2

(c) 24

(d) 4