Geometry CC – Unit 1
Lesson 7: Triangle Inequality Theorem

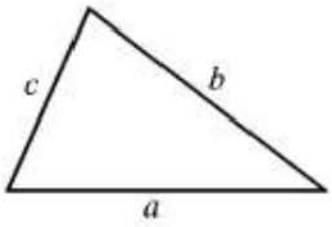
Name: _____
Date: _____

Okay! This is our last bit of material before Exam #1. Stay focused; it will be on your Exam.

With that being said…it is THEOREM time!

Triangle Inequality Theorem

**THEOREM:** The sum of the lengths of any two sides of a triangle must be greater than the third side.

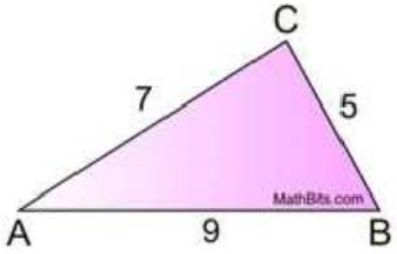



$a+b > c$

$a+c > b$

$b+c > a$

We should check out an example to confirm that this THEOREM is indeed true.




$5+7 > 9$
$12 > 9$ ✓

$5+9 > 7$
$14 > 7$ ✓

$7+9 > 5$
$16 > 5$ ✓

1.

Which set of numbers could be the lengths of the sides of a triangle?

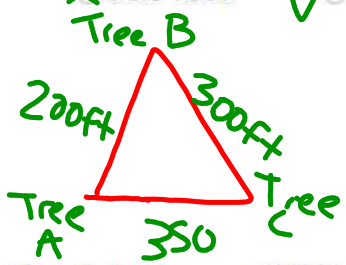
Choose:

- {6, 9, 15}
- {6, 9, 12}
- {3, 3, 7}
- {1, 2, 3}

**2.** Three trees are planted. The direct distance from tree $A$ to tree $B$ is 200 feet. The direct distance from tree $B$ to tree $C$ is 300 feet. Which of the choices could be the direct distance from tree $A$ to tree $C$?

Choose:

- 650 feet
- 550 feet
- 350 feet
- 50 feet




**3.** In $\Delta ABC$, $AB = 5$ inches and $BC = 3$ inches. Which of the choices represents all possible values for $AC$, in inches?

Choose:

- $3 < AC < 7$
- $2 < AC < 8$
- $3 \leq AC \leq 7$
- $2 \leq AC \leq 8$