

NAME

QUARTER

GRADE & SECTION

DATE

Activity: Triangle Inequality Theorem Part II

THEOREM

For Your Notebook

Triangle Inequality Theorem

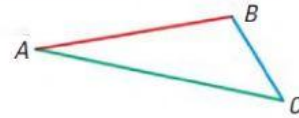
The sum of the lengths of any two sides of a triangle is greater than the length of the third side.

$$AB + BC > AC$$

$$AC + BC > AB$$

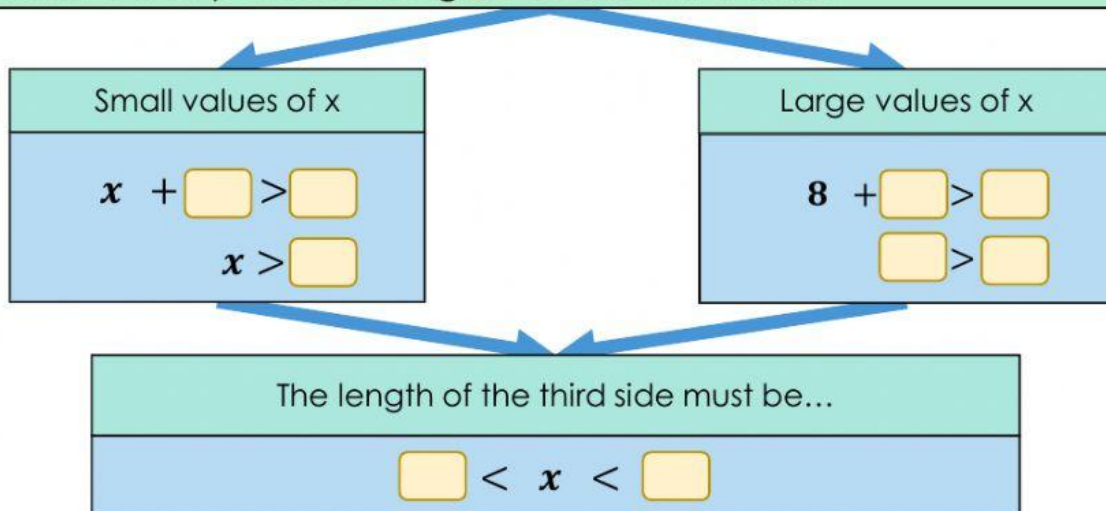
$$AB + AC > BC$$

Proof: Ex. 47, p. 334



- I. Complete the Math-Breaker Map as guide in making conclusions about the possible length of the 3rd side to form a triangle.

1. A triangle has one side of length 8 and another of length 3. Describe the possible lengths of the third side.



Drag the indicated 3rd side measure whether it is possible or not.

1

2

3

4.5

5

5.5

6.2

14

9.6

10

11.1

21

13

31

7

8

NOT possible
Measure of 3rd side

POSSIBLE
Measure of 3rd side

2. A triangle has one side of length 9 and another of length 31. Describe the possible lengths of the third side.

Small values of x	Large values of x
$x + \square > \square$ $x > \square$	$31 + \square > \square$ $\square > \square$
The length of the third side must be...	
$\square < x < \square$	

Drag the indicated 3rd side measure whether it is possible or not.

9

31

9.2

31.5

1

2

10

20

15

34

39.9

22.7

27.2

41

39

8

NOT possible Measure of 3 rd side			

POSSIBLE Measure of 3 rd side			

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

1. 25m, and 25m

Possible 3rd side: $\square < x < \square$

2. 2ft, and 40ft

Possible 3rd side: $\square < x < \square$

3. 10in, and 23in

Possible 3rd side: $\square < x < \square$

How many attempts? ____.
How well did you do?



Need help!



Just OK!



Splendid

I THINK...