

NAME

QUARTER

GRADE & SECTION

DATE

Activity: Triangle Inequality Theorem

THEOREM

For Your Notebook

Triangle Inequality Theorem

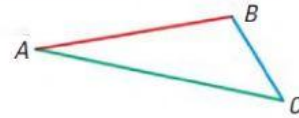
The sum of the lengths of any two sides of a triangle is greater than the length of the third side.

$$AB + BC > AC$$

$$AC + BC > AB$$

$$AB + AC > BC$$

Proof: Ex. 47, p. 334



I. Complete the Math-Breaker Map as guide in making conclusions.

1. Is it possible to construct a triangle with side lengths of **5 inches, 2 inches, and 8 inches**?

Is the sum of lengths of two sides greater than the length of third side?

$$5 + 2 > 8$$

$$\underline{\quad} > 8$$

$$\underline{\quad}$$

Is the sum of lengths of two sides greater than the length of third side?

$$5 + 8 > 2$$

$$\underline{\quad} > 2$$

$$\underline{\quad}$$

Is the sum of lengths of two sides greater than the length of third side?

$$8 + 2 > 5$$

$$\underline{\quad} > 5$$

$$\underline{\quad}$$

Is it possible to construct a triangle? (3pts)

Why?

2. Is it possible to construct a triangle with side lengths of **28cm, 34cm, and 39cm**?

Is the sum of lengths of two sides greater than the length of third side?

$$28 + 34 > 39$$

$$\underline{\quad} > 39$$

$$\underline{\quad}$$

Is the sum of lengths of two sides greater than the length of third side?

$$28 + 39 > 34$$

$$\underline{\quad} > 34$$

$$\underline{\quad}$$

Is the sum of lengths of two sides greater than the length of third side?

$$39 + 34 > 28$$

$$\underline{\quad} > 28$$

$$\underline{\quad}$$

Is it possible to construct a triangle? (3pts)

Why?

3. Is it possible to construct a triangle with side lengths of **27m, 16m, and 11m**?

Is the sum of lengths of two sides greater than the length of third side?

$$27 + 16 > 11$$

$$\boxed{} > 11$$

$$\boxed{}$$

Is the sum of lengths of two sides greater than the length of third side?

$$27 + 11 > 16$$

$$\boxed{} > 16$$

$$\boxed{}$$

Is the sum of lengths of two sides greater than the length of third side?

$$16 + 11 > 27$$

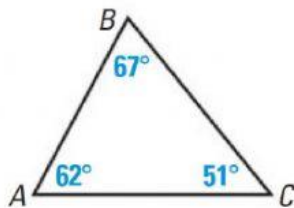
$$\boxed{} > 27$$

$$\boxed{}$$

Is it possible to construct a triangle? (3pts)

Why?

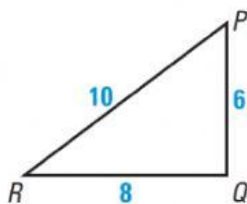
II. Arrange the sides and the angles in order from smallest to largest.



1. $\angle A$ $\angle B$ $\angle C$ $\overline{AB}$ $\overline{AC}$ $\overline{BC}$

Angles: < <

Sides: < <

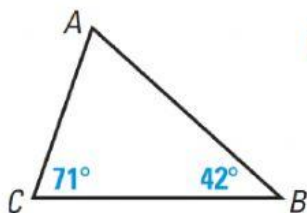


2. $\angle P$ $\angle Q$ $\angle R$ $\overline{PQ}$ $\overline{PR}$ $\overline{QR}$

Sides: < <

Angles: < <

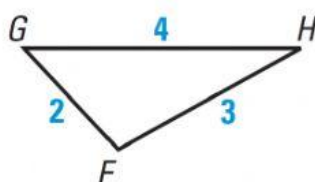
III. Drag the name of the indicated side or angle.



1. $\angle A$ $\angle B$ $\angle C$ $\overline{AB}$ $\overline{AC}$ $\overline{BC}$

Largest Angle: Longest Side:

Smallest Angle: Shortest Side:



2. $\angle F$ $\angle G$ $\angle H$ $\overline{FG}$ $\overline{FH}$ $\overline{GH}$

Longest Side: Largest Angle:

Shortest Side: Smallest Angle:

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



Need help!



Just OK!



Splendid

I FEEL THAT...