LESSON 2: SIDE- ANGLE RELATIONSHIP

I. OBJECTIVES

The learner illustrates theorems on triangle inequalities (Exterior Angle Inequality Theorem, Triangle Inequality Theorem, Hinge Theorem). *M8GE-IVa-1*

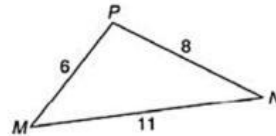- The learner applies the Side-Angle and Angle-Side Inequality theorem to determine the longest side and largest angle of a triangle.

II. LESSON

SIDE-ANGLE INEQUALITY THEOREM

If one side of a triangle is longer than the second side, then the measure of the angle opposite the longer side is greater than the measure of the angle opposite the shortest side.

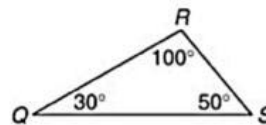| Longest side: $\overline{MN}$ | Opposite angle of $\overline{MN}$: $\angle P$ |
| Shortest side: $\overline{PM}$ | Opposite angle of $\overline{PM}$: $\angle N$ |

Refer to ΔMPN, arrange the angles in decreasing order. $\angle P, \angle M, \angle N$

ANGLE-SIDE INEQUALITY THEOREM

If one side of a triangle is longer than the second side, then the measure of the angle opposite the longer side is greater than the measure of the angle opposite the shortest side.

| Largest angle: $\angle R$ | Opposite side of $\angle R$: $\overline{QS}$ |
| Smallest angle: $\angle Q$ | Opposite side of $\angle Q$: $\overline{RS}$ |

Refer to ΔMPN, arrange the sides in decreasing order. $\overline{RS}, \overline{QR}, \overline{SQ}$

III. ACTIVITY

I. Given the ΔILY, answer the following questions.

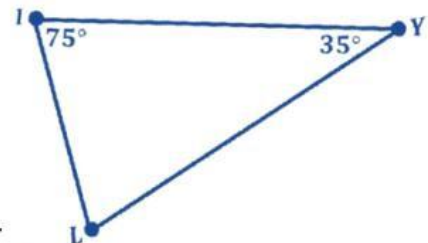

1. What is the largest angle?   ∠ ☐
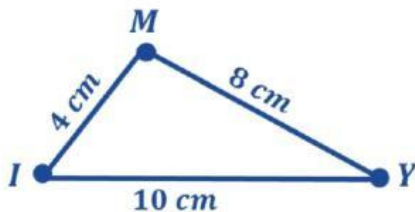
2. What is the smallest angle?   ∠ ☐

3-5. Arrange the side in order from the **GREATEST** to the **LEAST** measure.

☐   ☐   ☐

II. Given the ΔIMY, answer the following questions.

1. What is the longest side?   ☐

2. What is the shortest side?   ☐

3-5. Arrange the angles in order from the **GREATEST** to

the **LEAST** measure.   ∠ ☐   ∠ ☐   ∠ ☐

HOW DO YOU FEEL ABOUT TODAY'S LESSON?

I NEED MORE HELP!

I'M GETTING IT!

I GOT IT!

-MTSC-