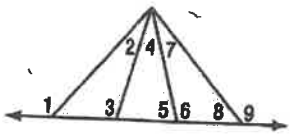
9) **Use the Exterior Angle Inequality Theorem to list all of the angles that satisfy the stated condition.**



measures less than $m\angle 1$

$\angle 2, \angle 4, \angle 7, \angle 3, \angle 5, \angle 8$

measures less than $m\angle 9$

$\angle 7, \angle 6, \angle 4, \angle 2$

measures greater than $m\angle 5$

$\angle 1, \angle 3$

measures greater than $m\angle 8$

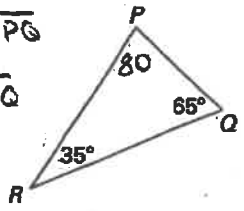
$\angle 5, \angle 3, \angle 1$

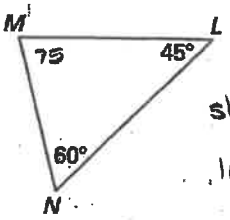
10)

Name the shortest and longest sides of the triangle.

shortest = $\overline{PQ}$

longest = $\overline{RQ}$

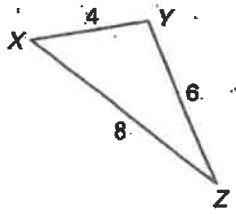




shortest = $\overline{MN}$

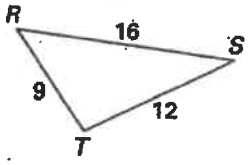
longest = $\overline{NL}$

11) **Name the smallest and largest angles of the triangle.**



smallest $\angle Z$

largest $\angle Y$



smallest $\angle S$

largest $\angle T$

5.5

12) **Is it possible to form a triangle with the given side lengths? If not, explain why not.**

1. 2 ft, 3 ft, 4 ft

$2+3>4$ ✓

$3+4>2$ ✓

$4+2>3$ ✓

yes

2. 5 m, 7 m, 9 m

yes

$5+7>9$ ✓

$7+9>5$ ✓

$9+5>7$ ✓

13) **Find the range for the measure of the third side of a triangle given the measures of two sides.**

9. 5 ft, 9 ft

$5+9>x$ $\quad 5+x>9$ $\quad x+9>5$

$14>x$ $\quad x>4$ $\quad x>-4$

$4<x<14$

10. 7 in., 14 in.

$7+14>x$ $\quad x+7>14$ $\quad x+14>7$

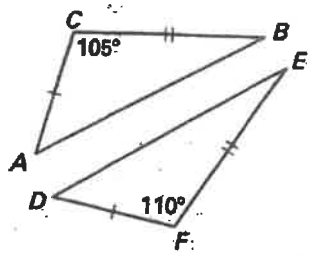
$21>x$ $\quad x>7$ $\quad x>-7$

$7<x<21$

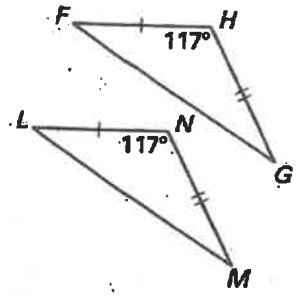
5.6

14) **Complete with <, >, or =.**

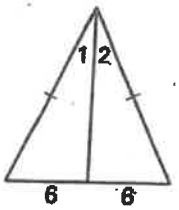
AB ? DE <



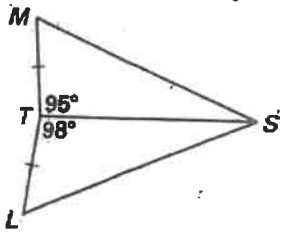
FG ? LM =



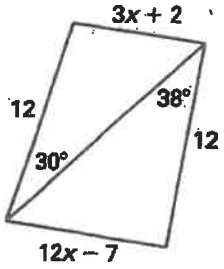
$m\angle 1$? $m\angle 2$ =



MS ? LS <



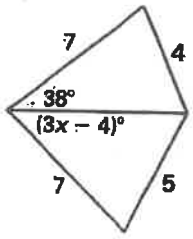
15) **Use an inequality to describe a restriction on the value of x as determined by the Hinge Theorem or its converse.**



$12x - 7 < 3x + 2$

$9x < 9$

$\boxed{x < 1}$



$3x - 4 > 38$

$3x > 42$

$\boxed{x > 14}$