Exterior Angle Inequality Theorem

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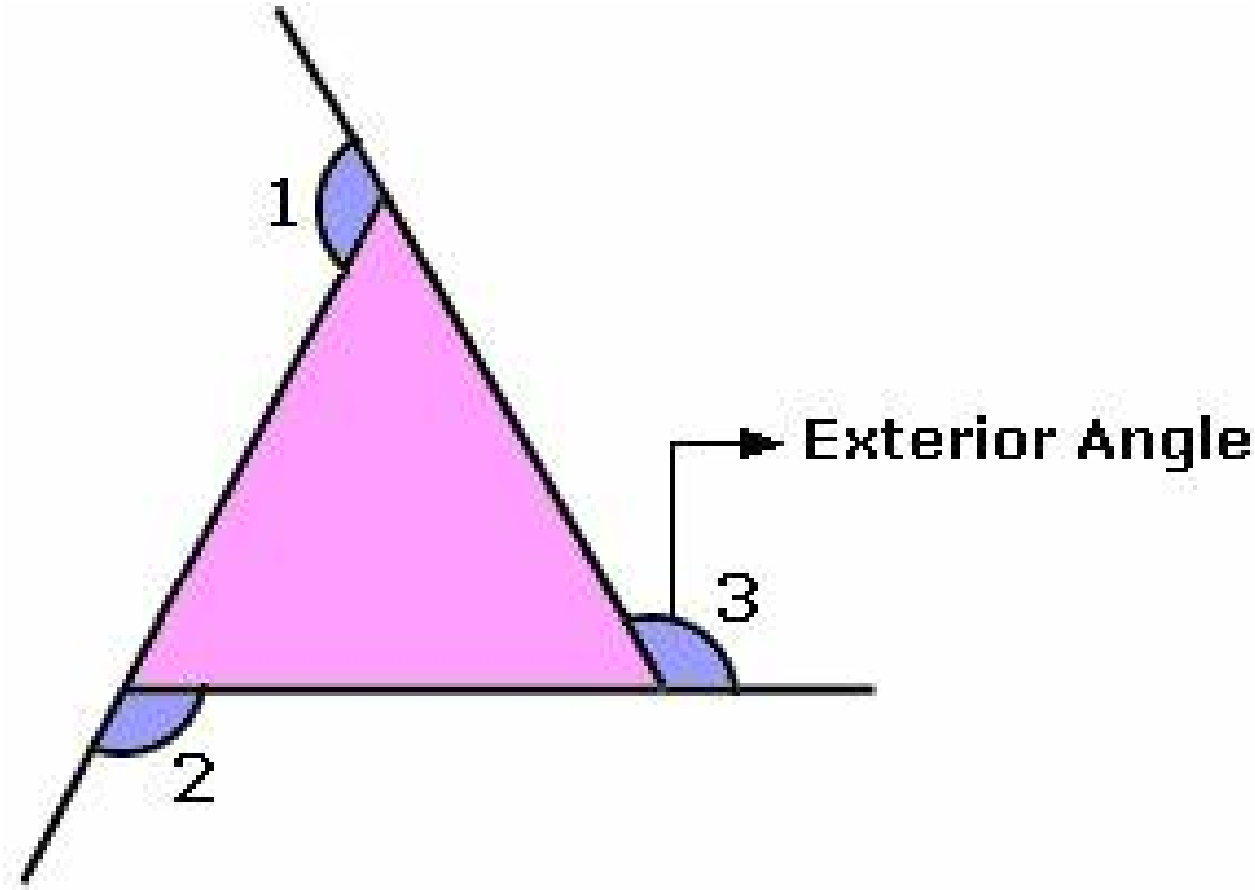
Sauyo High School

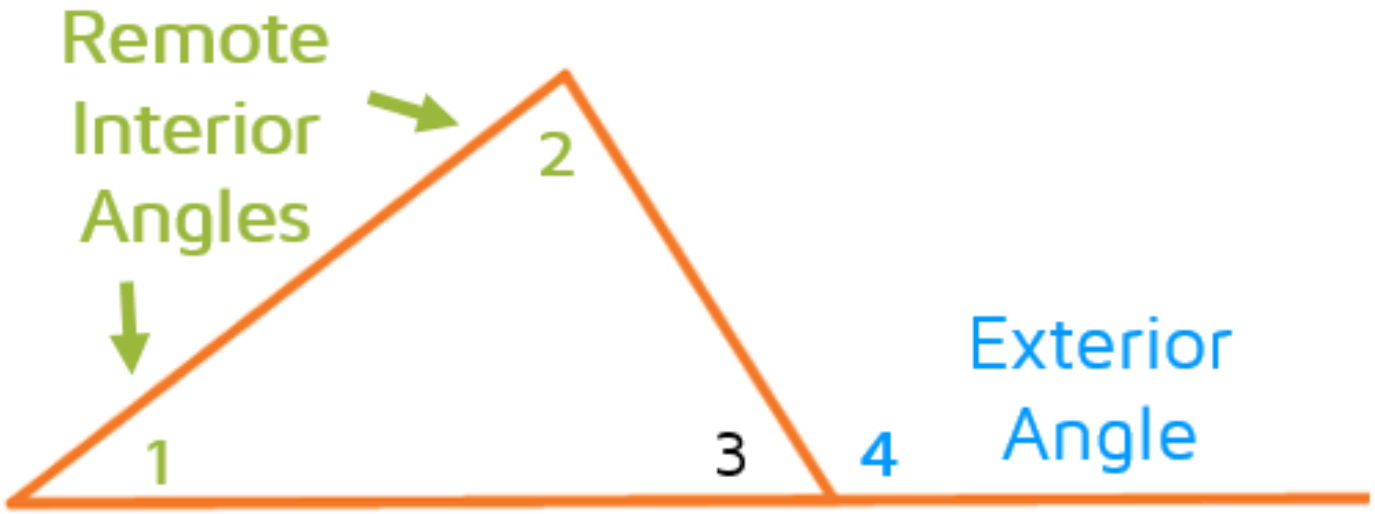
What is the Exterior Angle?

It is the angle between a side of a polygon and an extended adjacent side.



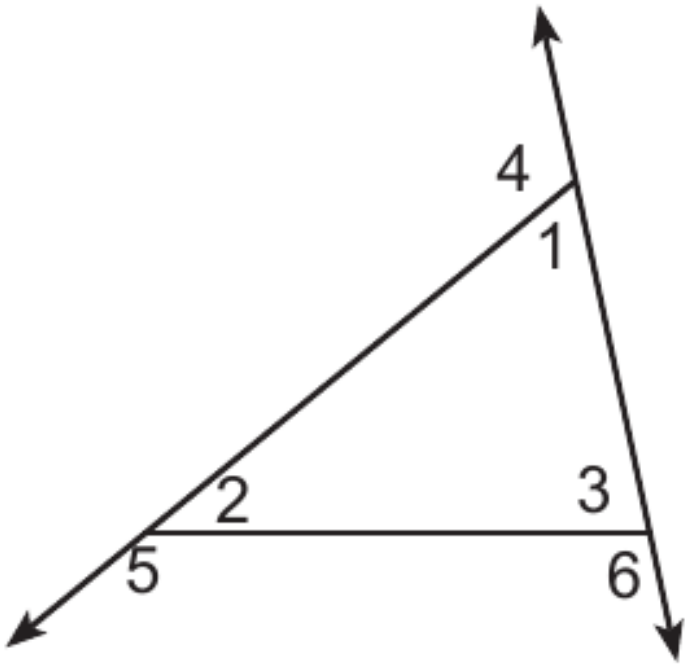
What is a Remote Interior Angle?

It is an interior angle that is not adjacent to the exterior angle.



Practice

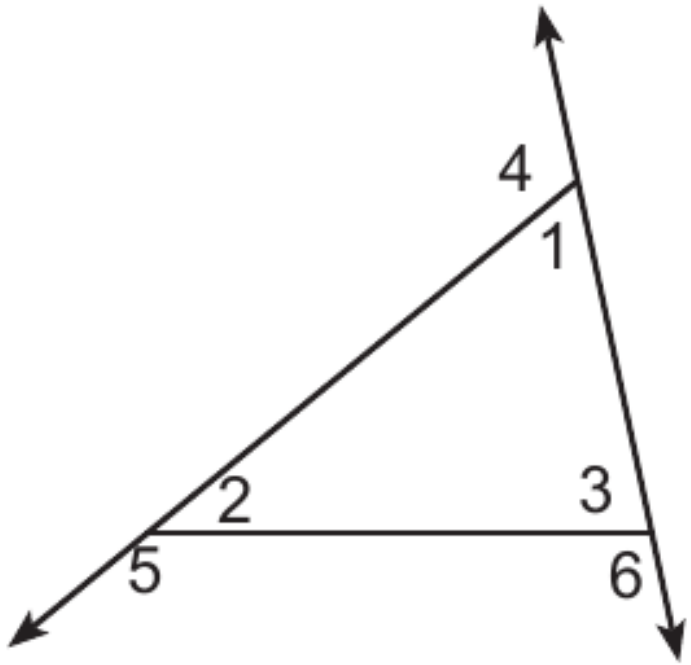
Determine the remote interior angles in relation to each exterior angle.



1. $\angle 4$

Practice

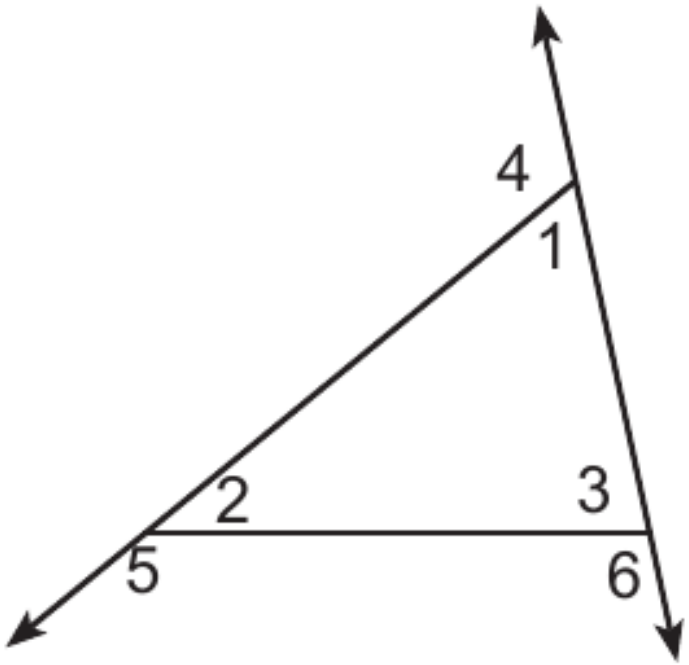
Determine the remote interior angles in relation to each exterior angle.



1. $\angle 4$
$\angle 2, \angle 3$

Practice

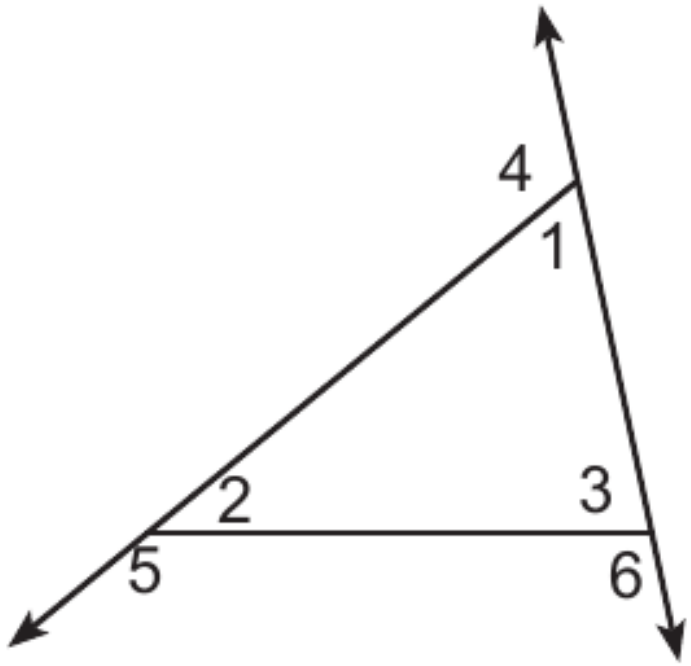
Determine the remote interior angles in relation to each exterior angle.



2. $\angle 5$

Practice

Determine the remote interior angles in relation to each exterior angle.

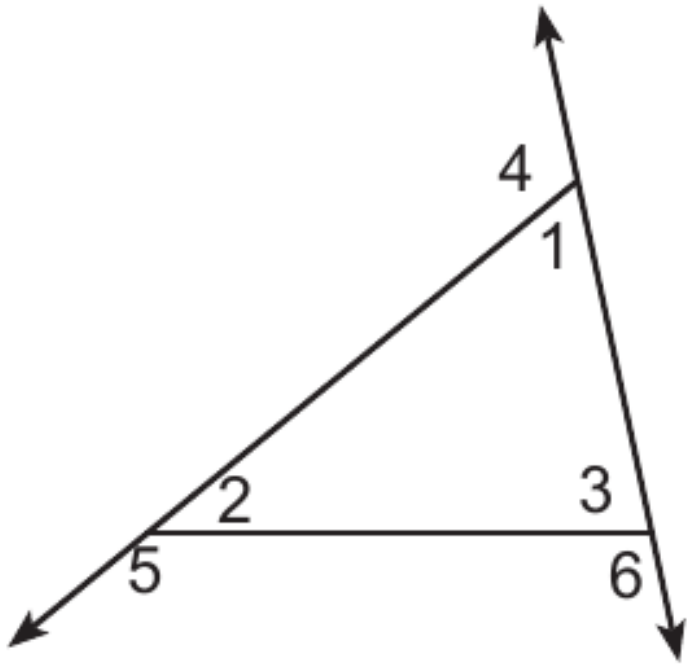


2. $\angle 5$

$\angle 1, \angle 3$

Practice

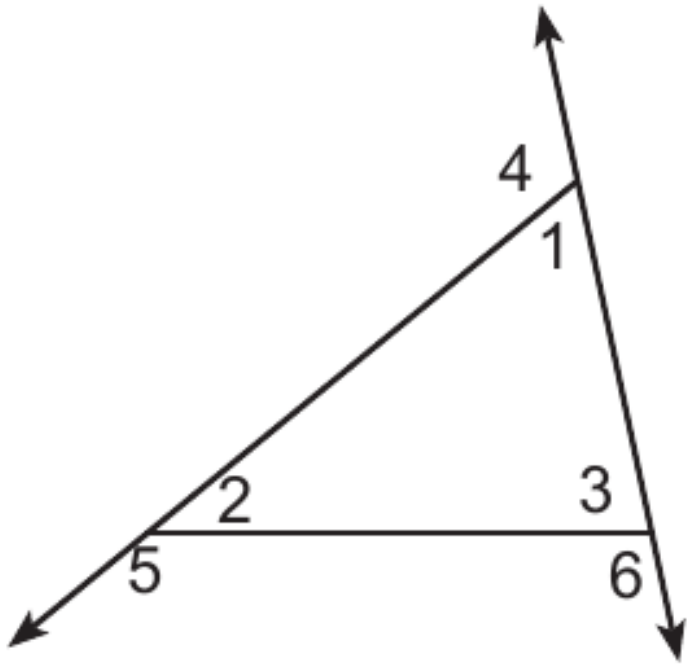
Determine the remote interior angles in relation to each exterior angle.



3. $\angle 6$

Practice

Determine the remote interior angles in relation to each exterior angle.

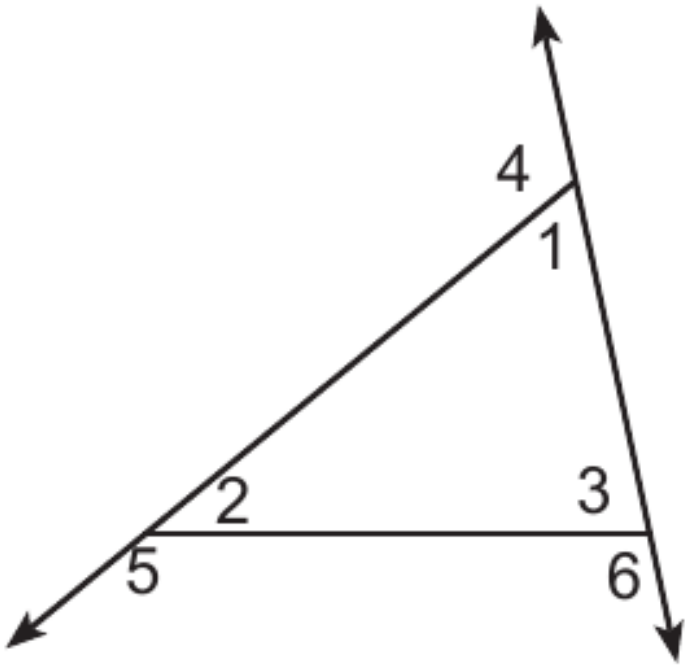


3. $\angle 6$

$\angle 1, \angle 2$

Practice

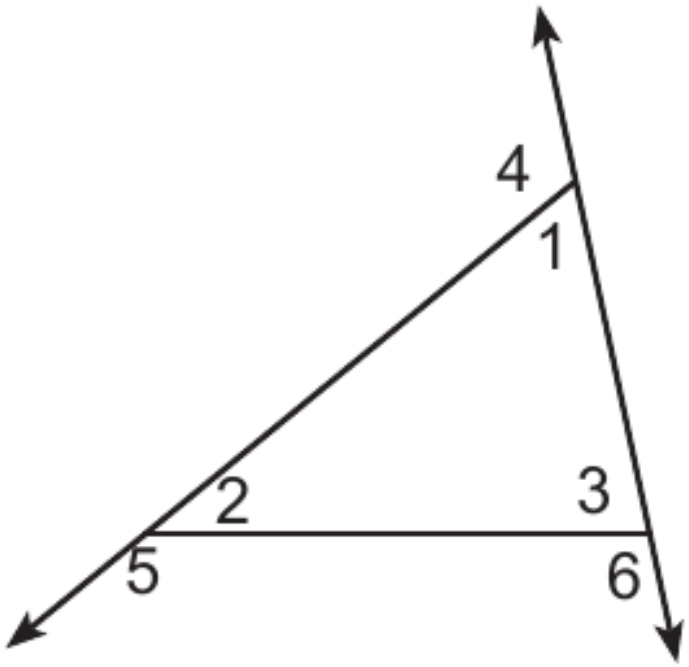
Determine the exterior angle in relation to each pair of remote interior angles.



1. $\angle 1, \angle 2$

Practice

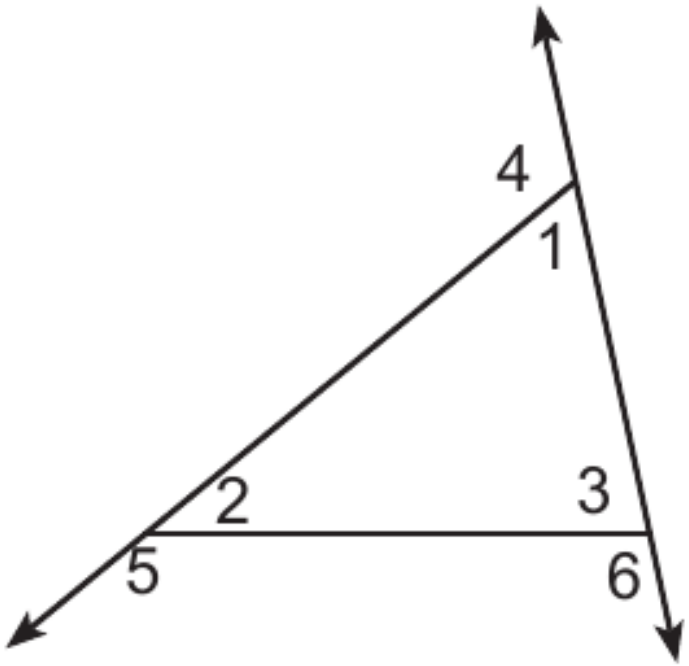
Determine the exterior angle in relation to each pair of remote interior angles.



1. $\angle 1, \angle 2$
$\angle 6$

Practice

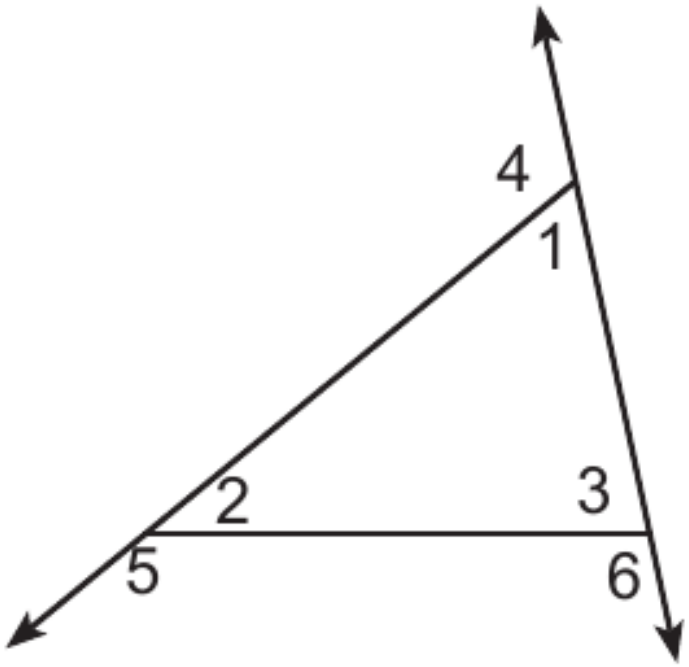
Determine the exterior angle in relation to each pair of remote interior angles.



2. $\angle 1, \angle 3$

Practice

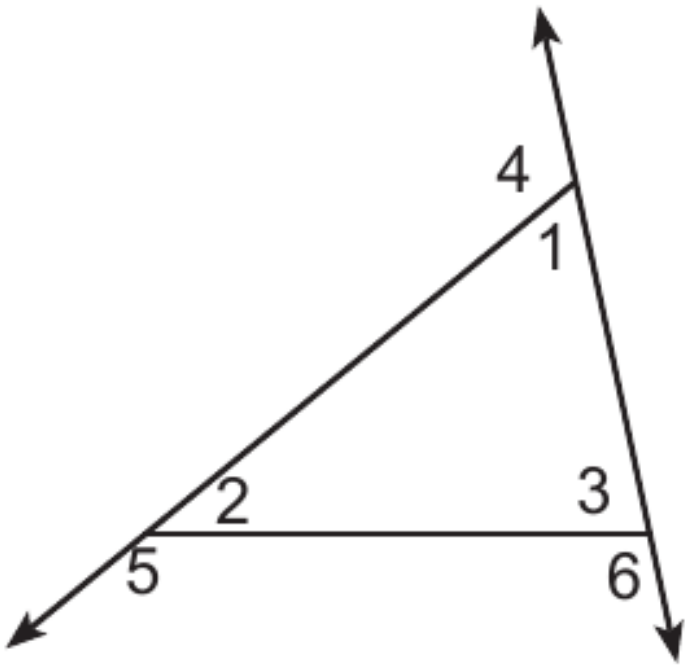
Determine the exterior angle in relation to each pair of remote interior angles.



2. $\angle 1, \angle 3$
$\angle 5$

Practice

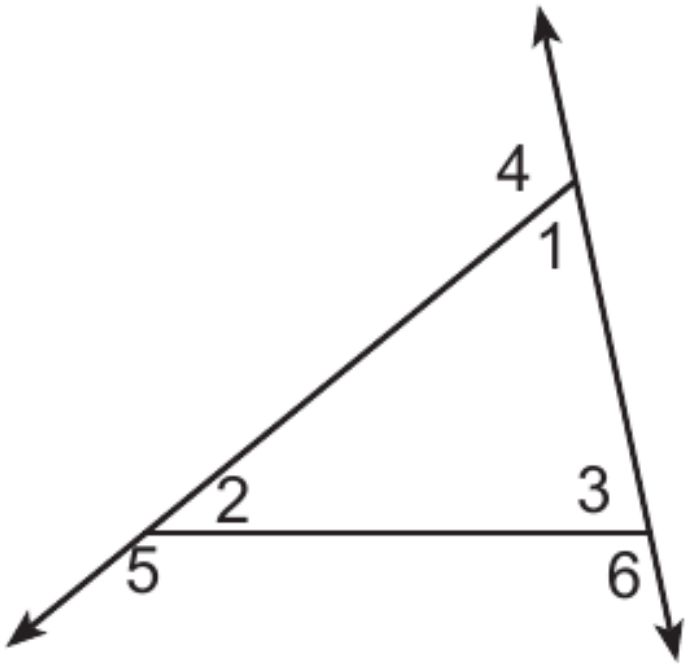
Determine the exterior angle in relation to each pair of remote interior angles.



3. $\angle 2, \angle 3$

Practice

Determine the exterior angle in relation to each pair of remote interior angles.

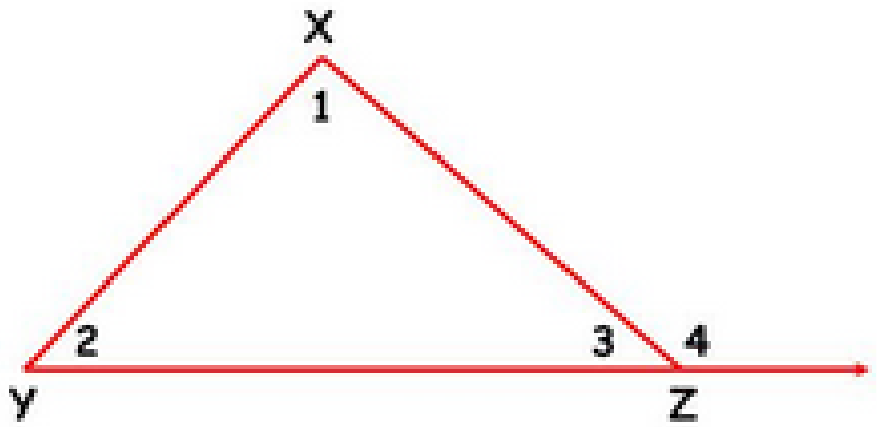


3. $\angle 2, \angle 3$

$\angle 4$

What is the Exterior Angle Inequality Theorem?

The measure of an exterior angle of a triangle is greater than the measure of either remote interior angle.

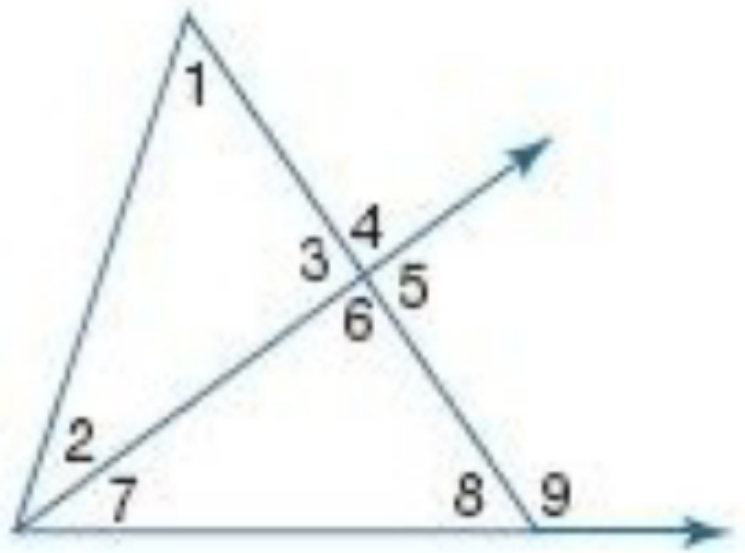


$m\angle 4 > m\angle 1$

$m\angle 4 > m\angle 2$

Example 1

Refer to the figure to determine whether each statement is True or False.



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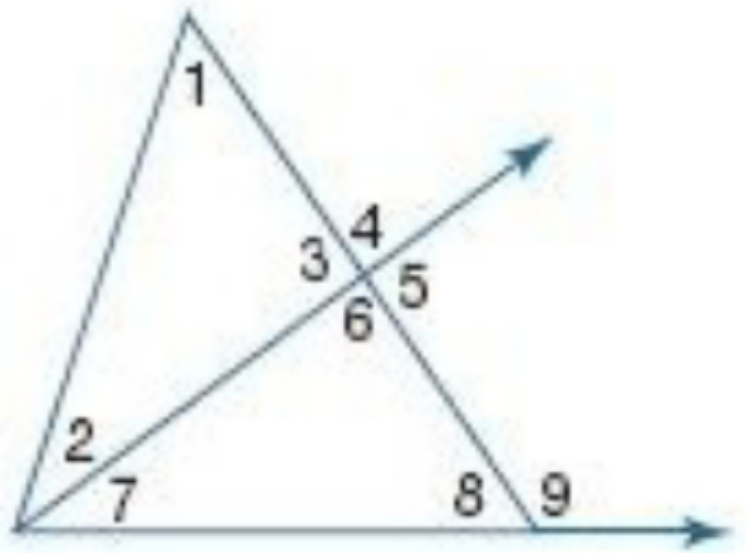

$m\angle 4 > m\angle 1$

True

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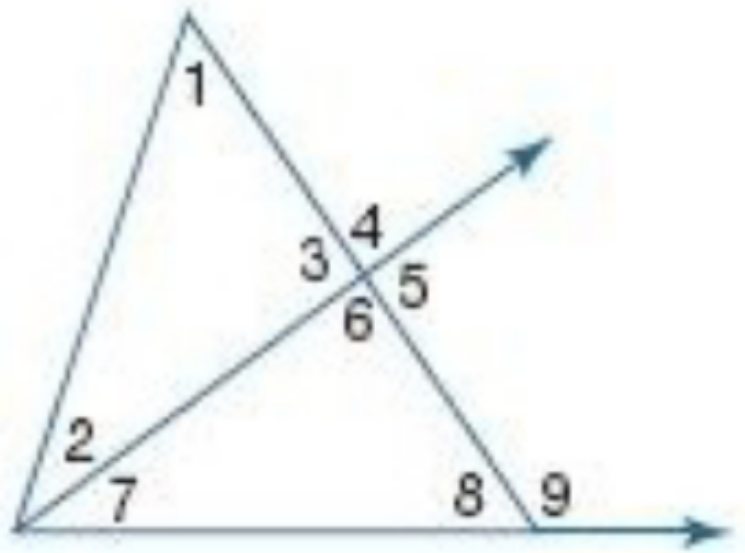
Refer to the figure to determine whether each statement is True or False.



$m\angle 5 < m\angle 8$

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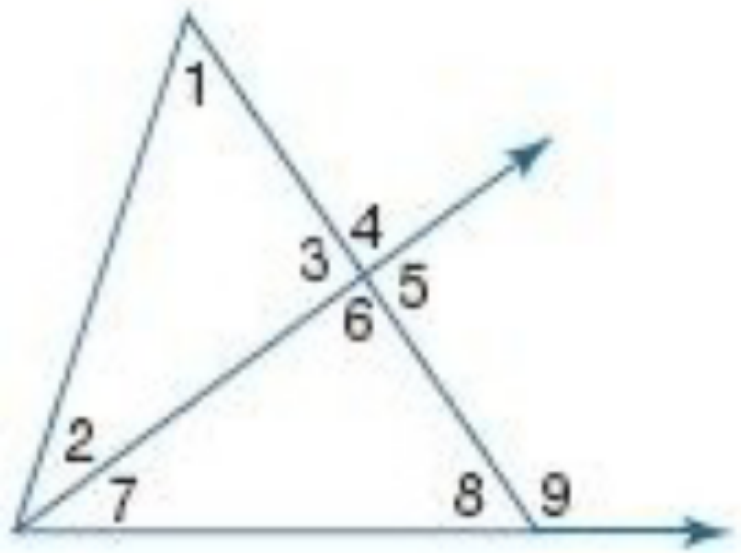

$m\angle 5 < m\angle 8$

False

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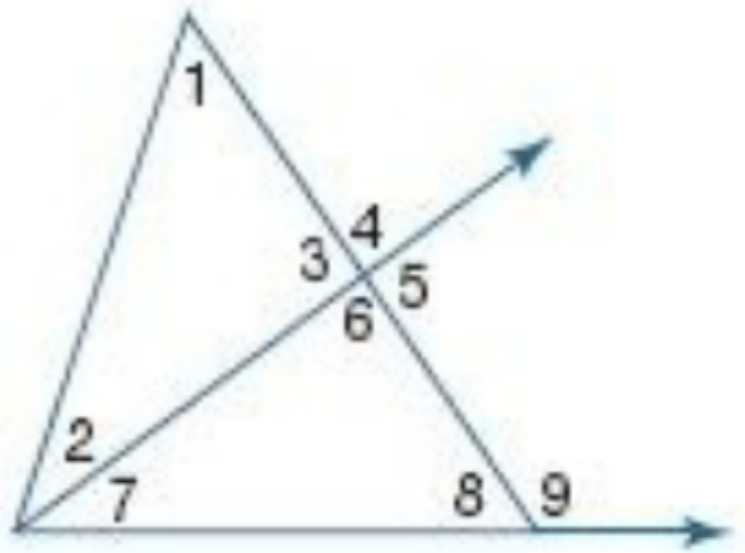

$m\angle 9 > m\angle 6$

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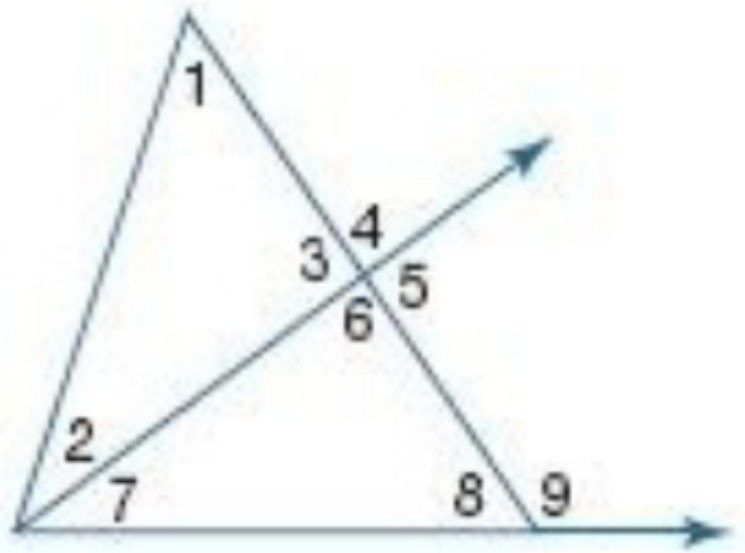

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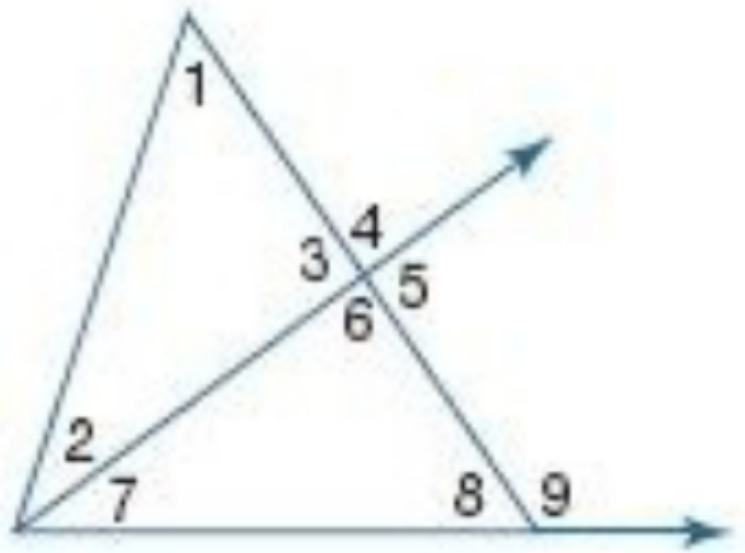

$m\angle 2 > m\angle 4$

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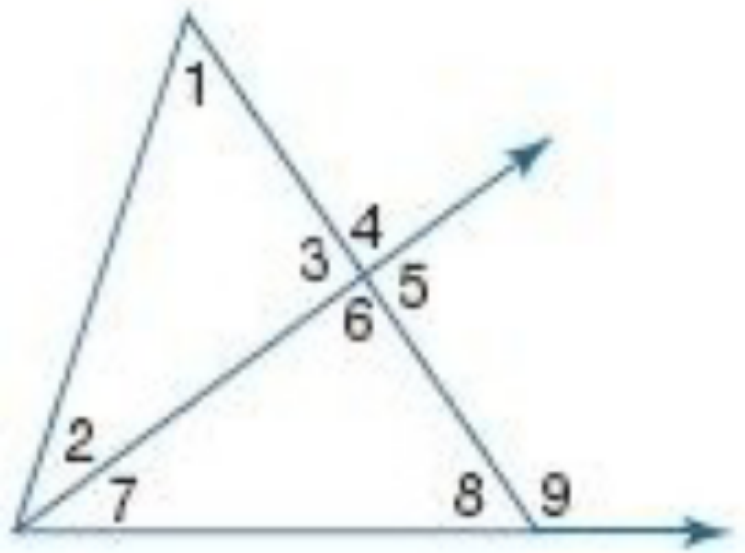

$m\angle 2 > m\angle 4$

False

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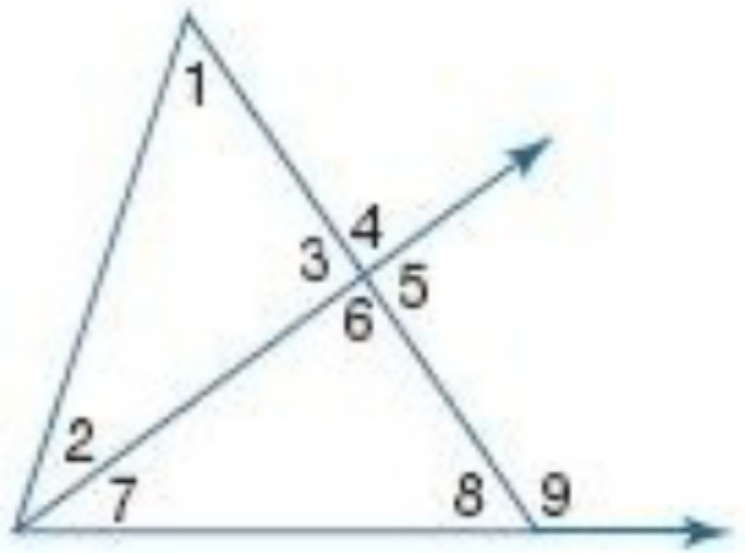

$m\angle 8 > m\angle 5$

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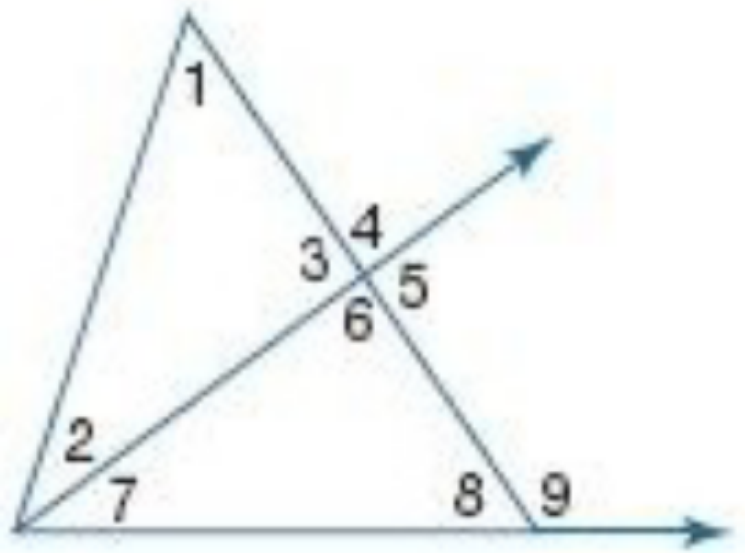

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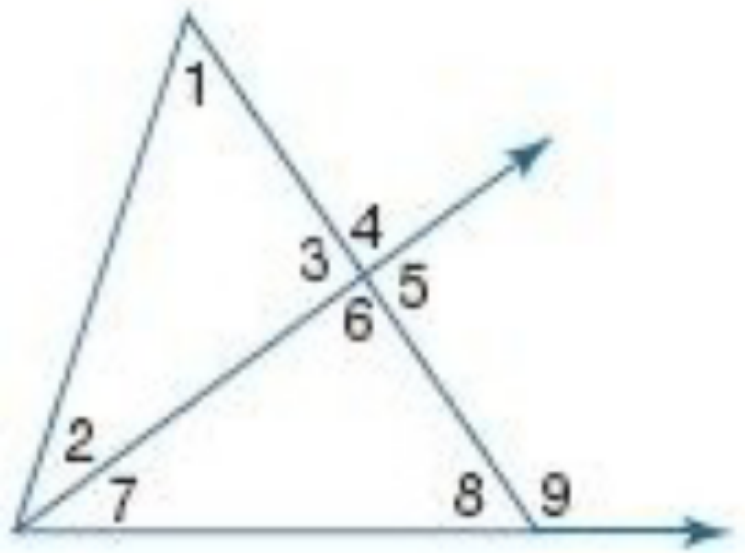

$m\angle 7 < m\angle 9$

Example 1

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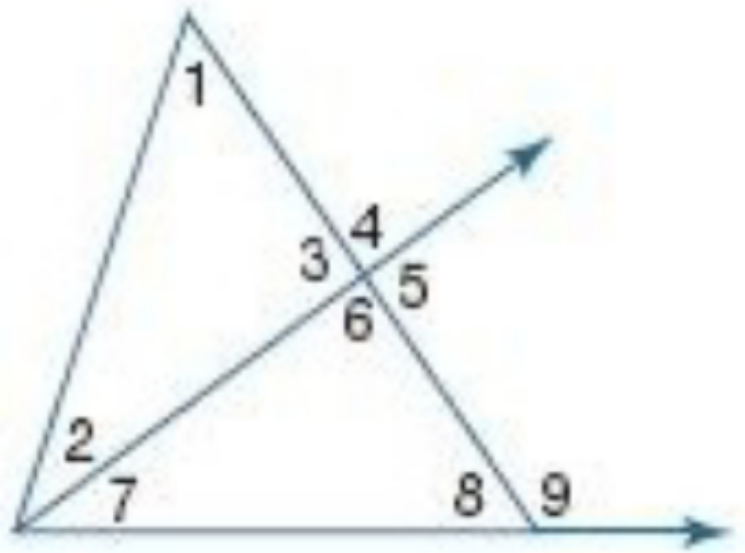

$m\angle 7 < m\angle 9$

True

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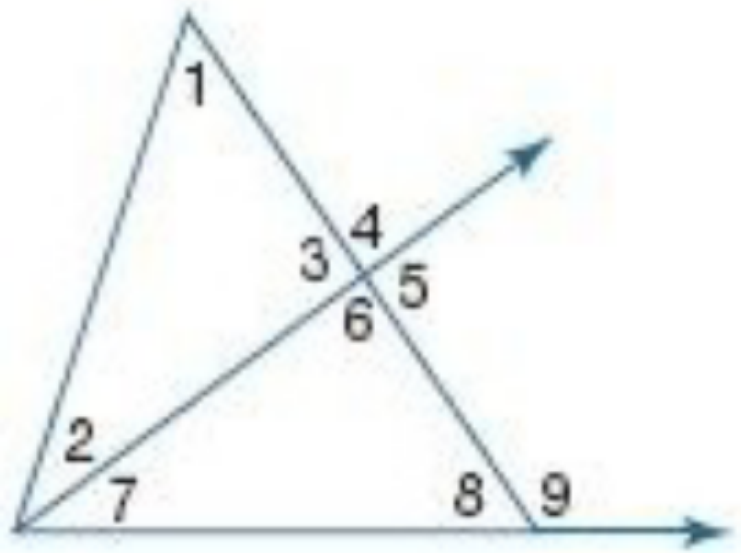

$m\angle 9 > m\angle 1$

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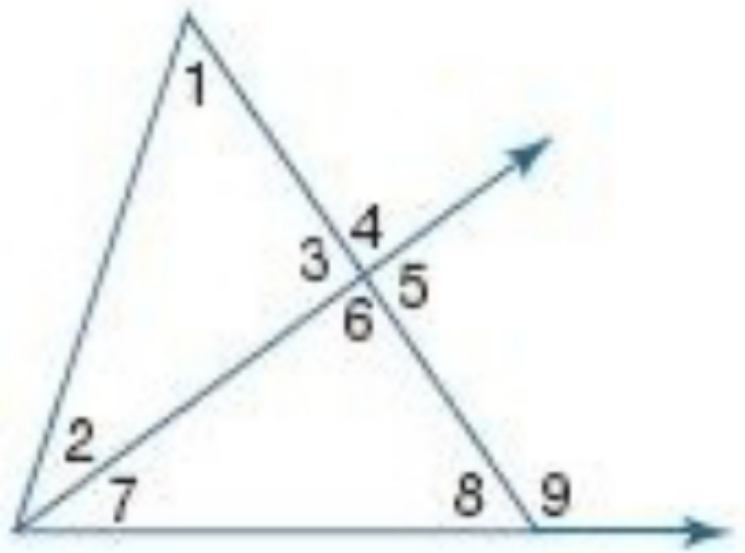

$m\angle 9 > m\angle 1$

True

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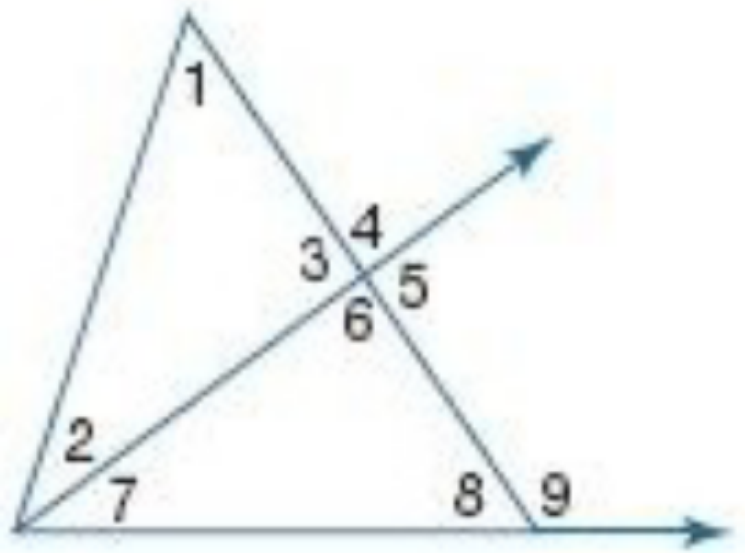
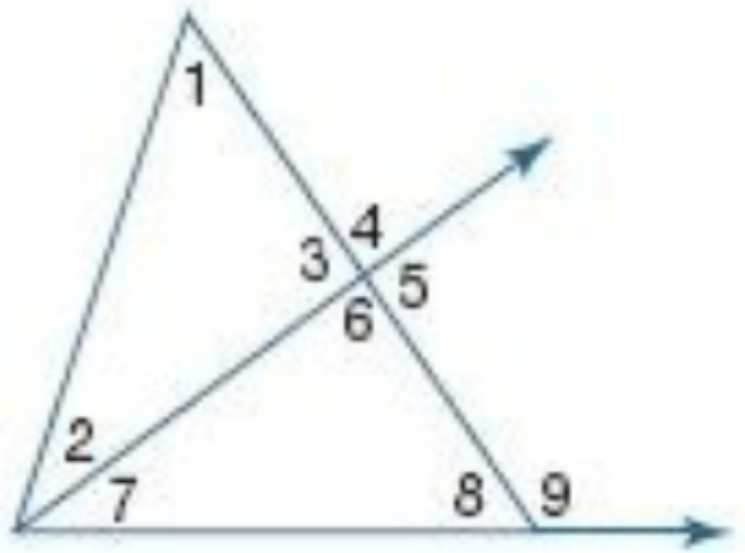


$m\angle 8 > m\angle 3$

Example 1

Refer to the figure to determine whether each statement is True or False.



$m\angle 8 > m\angle 3$

False

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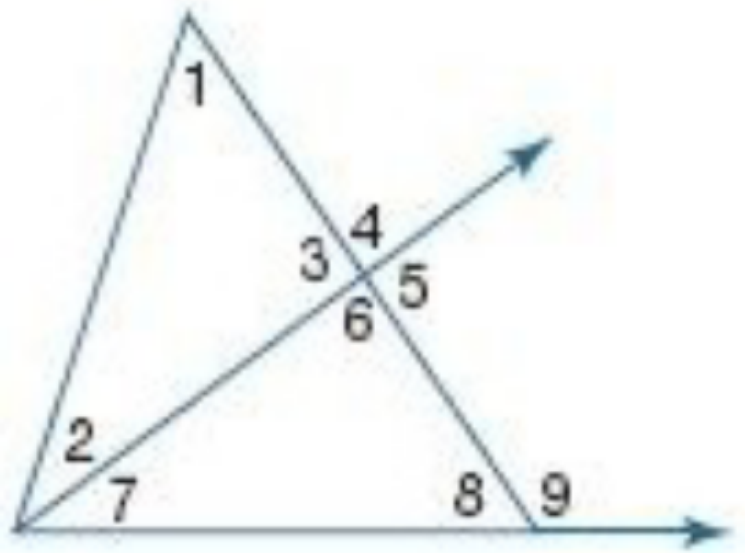
Refer to the figure to determine whether each statement is True or False.



$m\angle 6 > m\angle 1$

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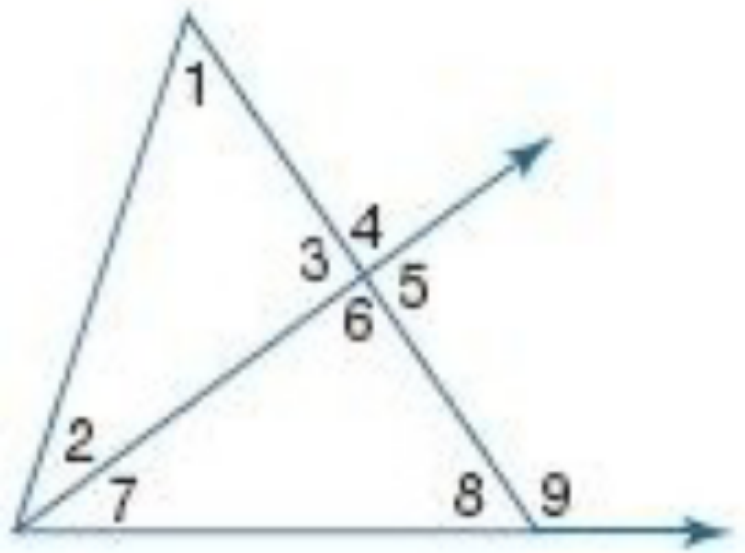

$m\angle 6 > m\angle 1$

True

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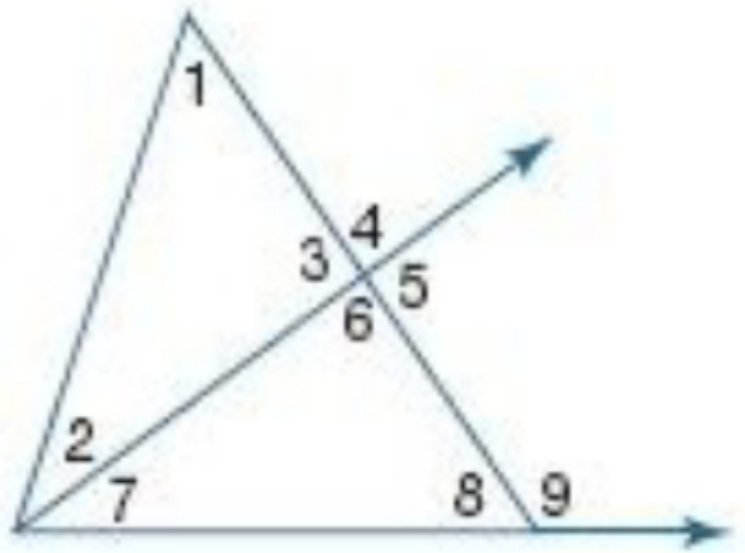

$m\angle 2 > m\angle 4$

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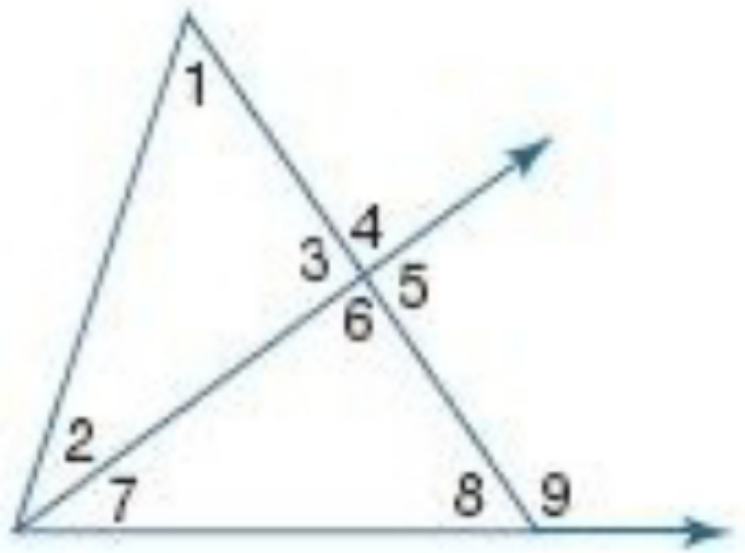
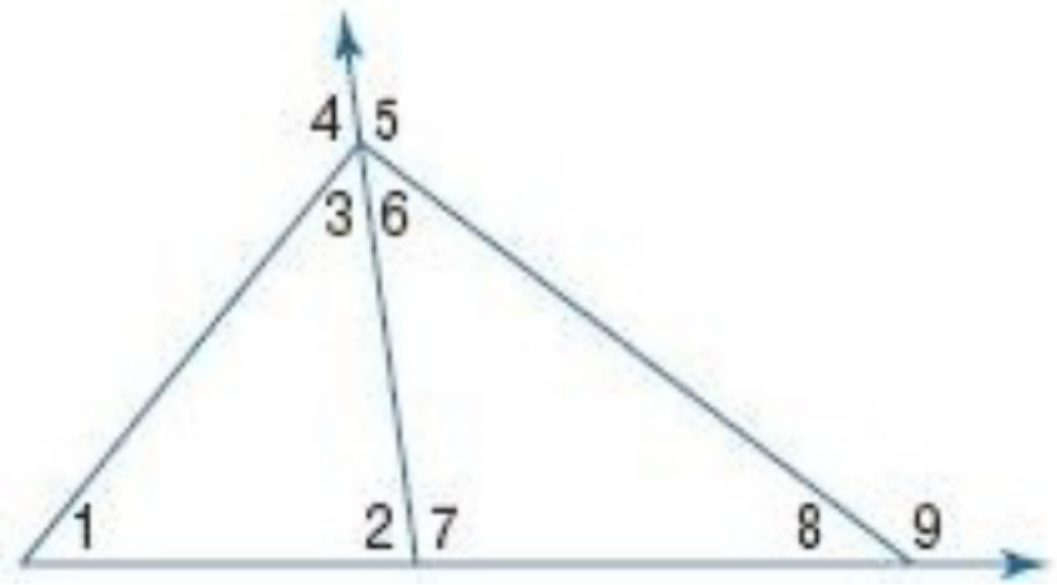


$m\angle 2 > m\angle 4$

False

Example 2

Refer to the figure to list all the angles that satisfy the stated condition.



measures greater than $m\angle 7$

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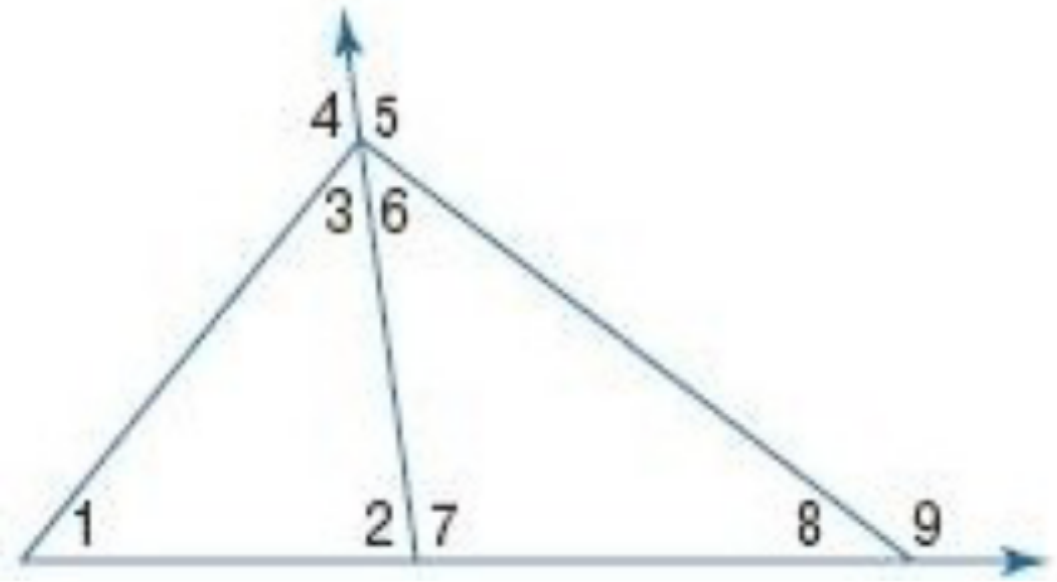

measures greater than $m\angle 7$

$\angle 5, \angle 9$

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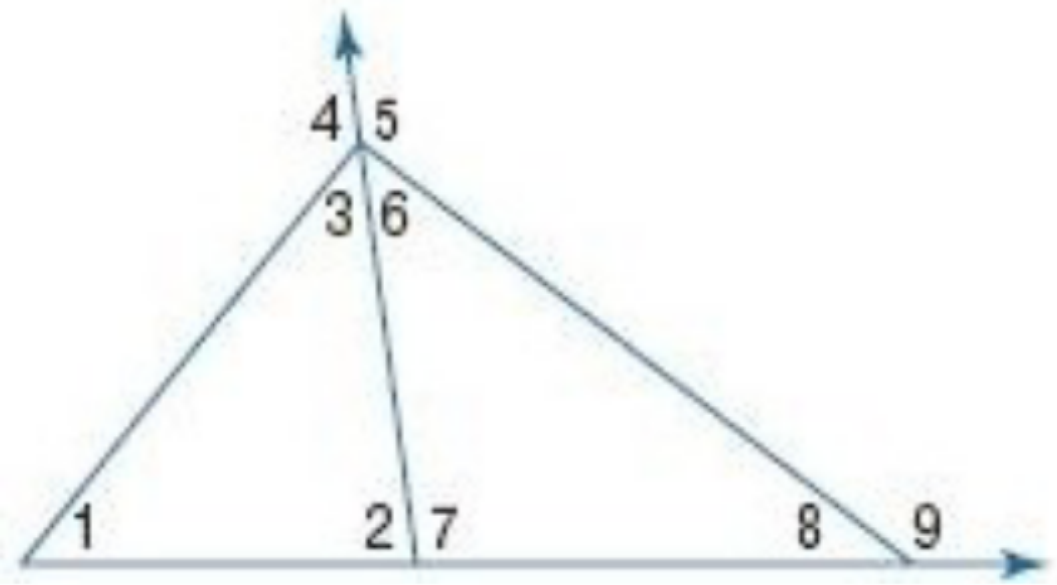

measures less than $m\angle 7$

Example 2

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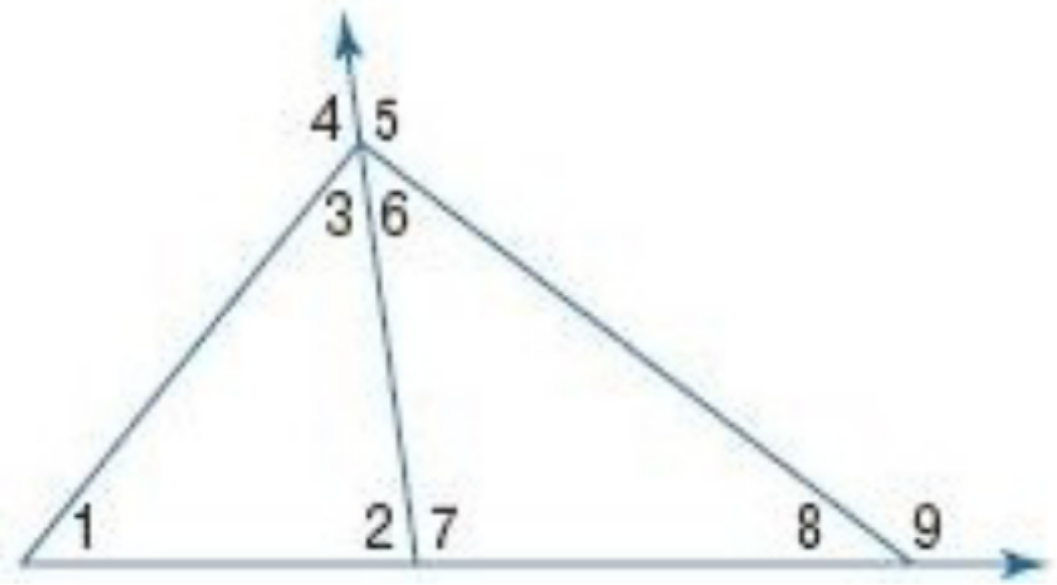

measures less than $m\angle 7$

$\angle 1, \angle 3$

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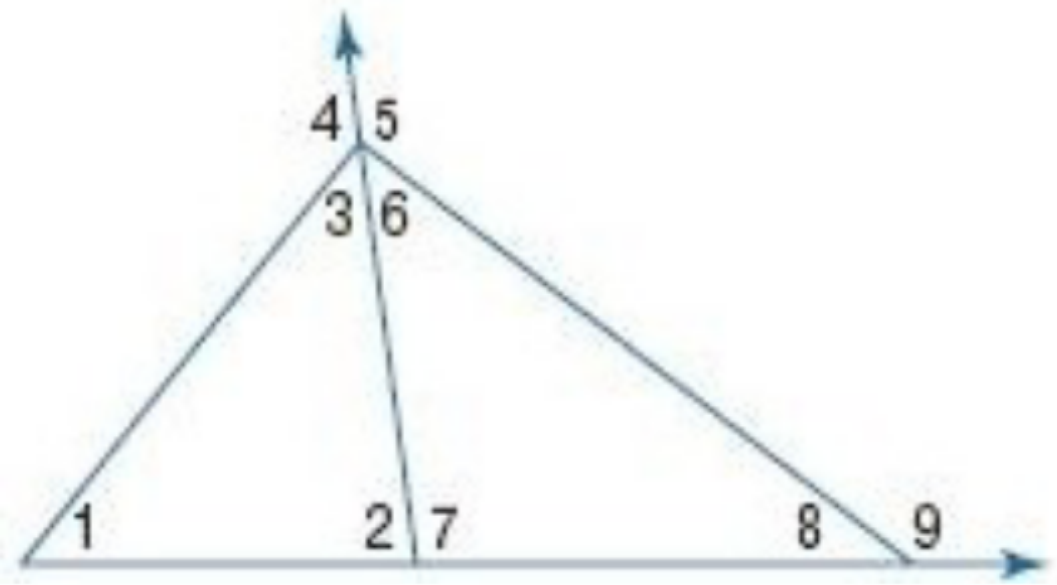

measures greater than $m\angle 6$

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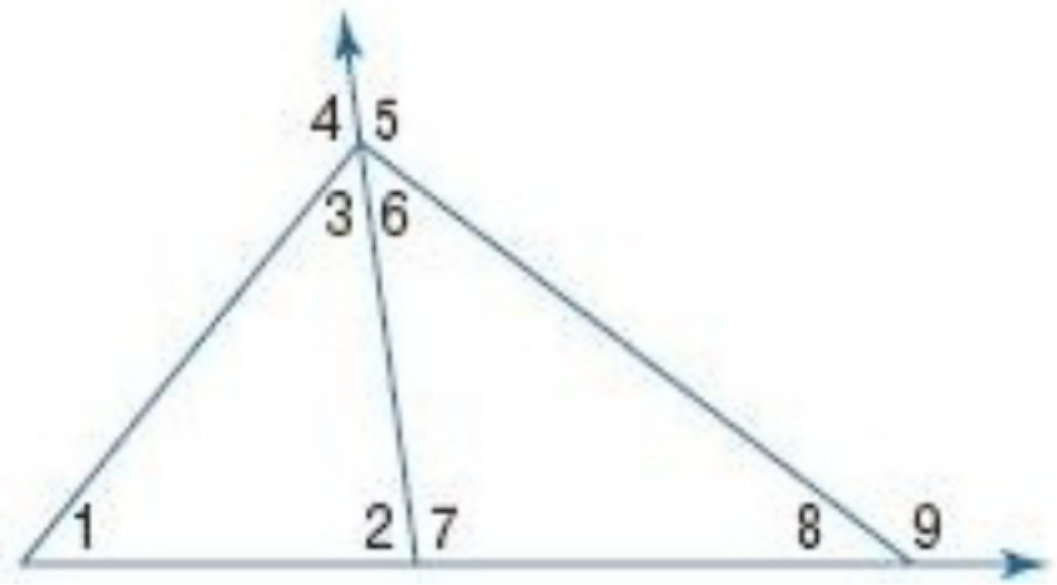

measures greater than $m\angle 6$

$\angle 2, \angle 9$

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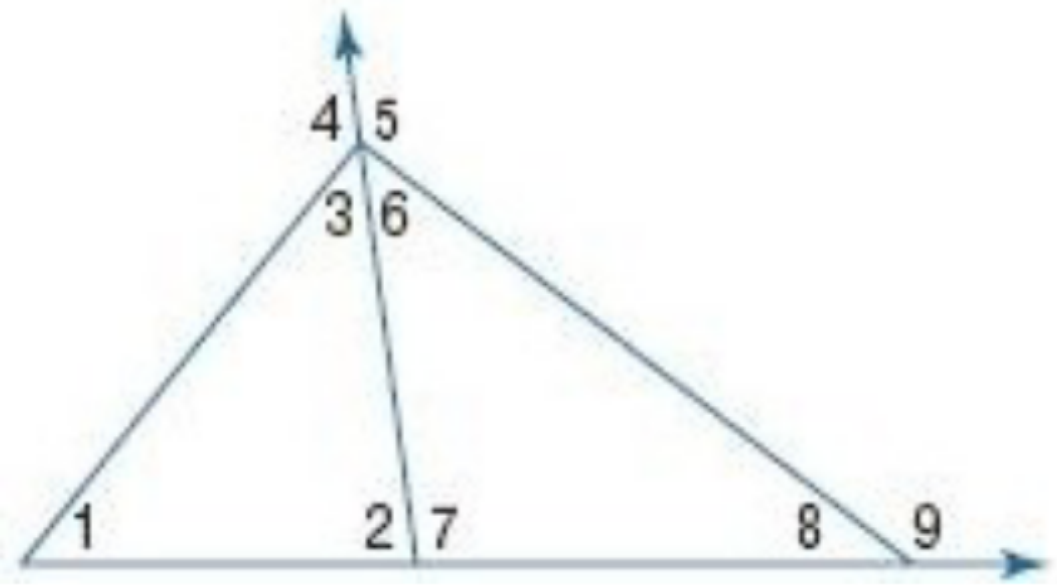

measures less than $m\angle 2$

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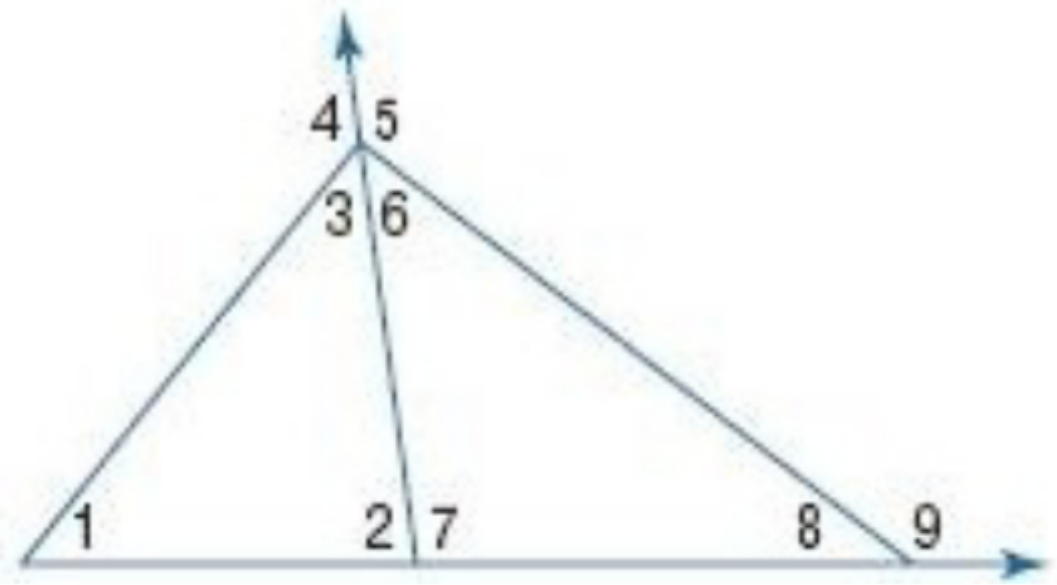
Refer to the figure to list all the angles that satisfy the stated condition.

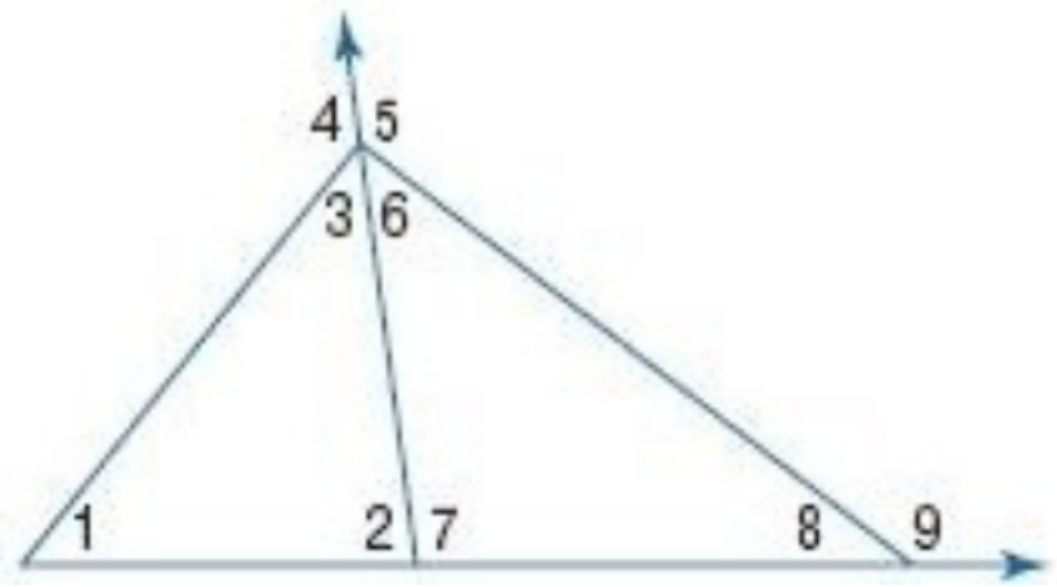


measures less than $m\angle 2$

$\angle 6, \angle 8$

Example 2

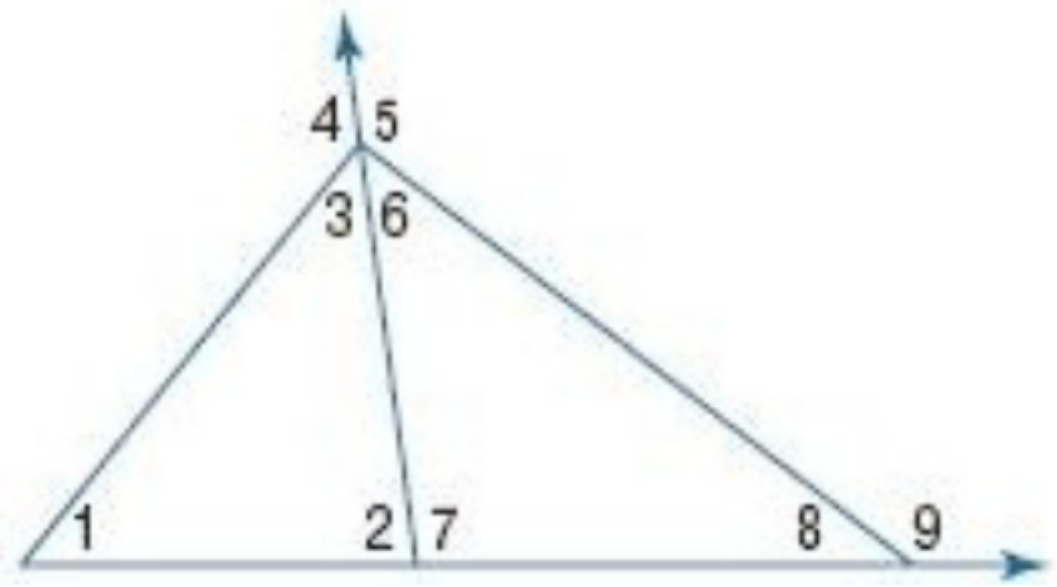
Refer to the figure to list all the angles that satisfy the stated condition.



measures greater than $m\angle 2$

Example 2

Refer to the figure to list all the angles that satisfy the stated condition.

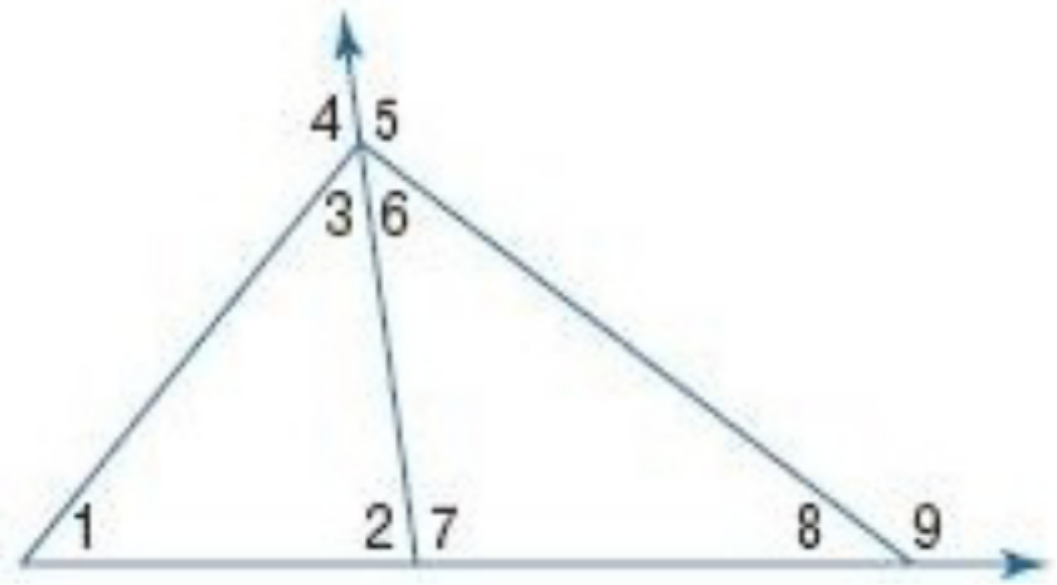


measures greater than $m\angle 2$

$\angle 4$

Example 2

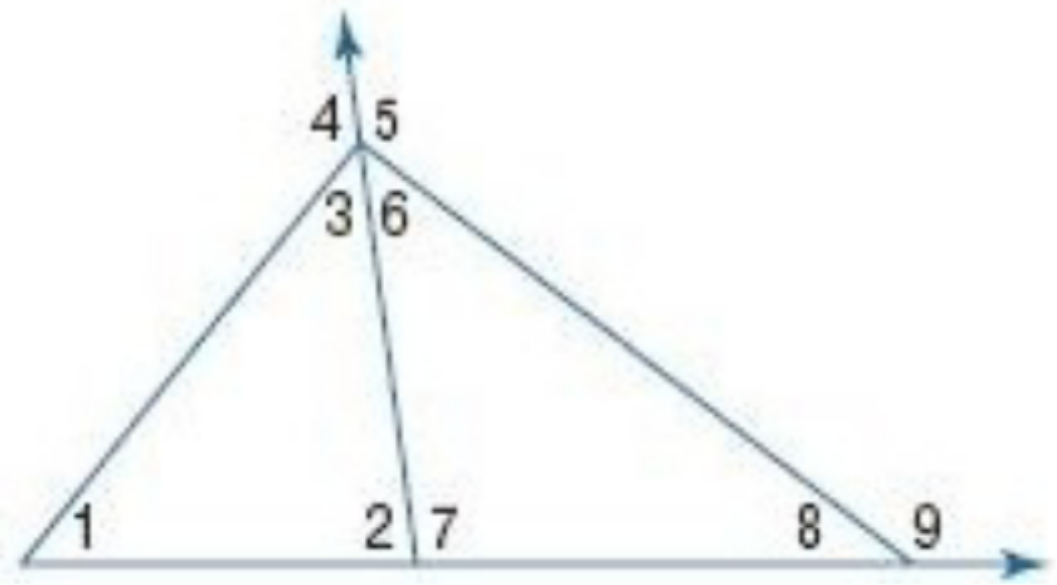
Refer to the figure to list all the angles that satisfy the stated condition.



measures less than $m\angle 5$

Example 2

Refer to the figure to list all the angles that satisfy the stated condition.

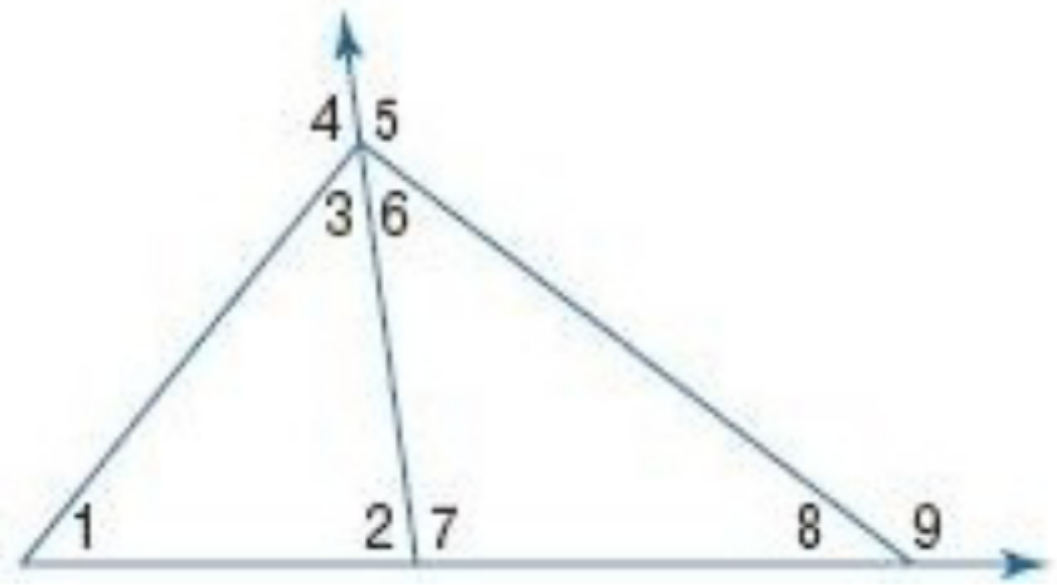


measures less than $m\angle 5$

$\angle 7, \angle 8$

Example 2

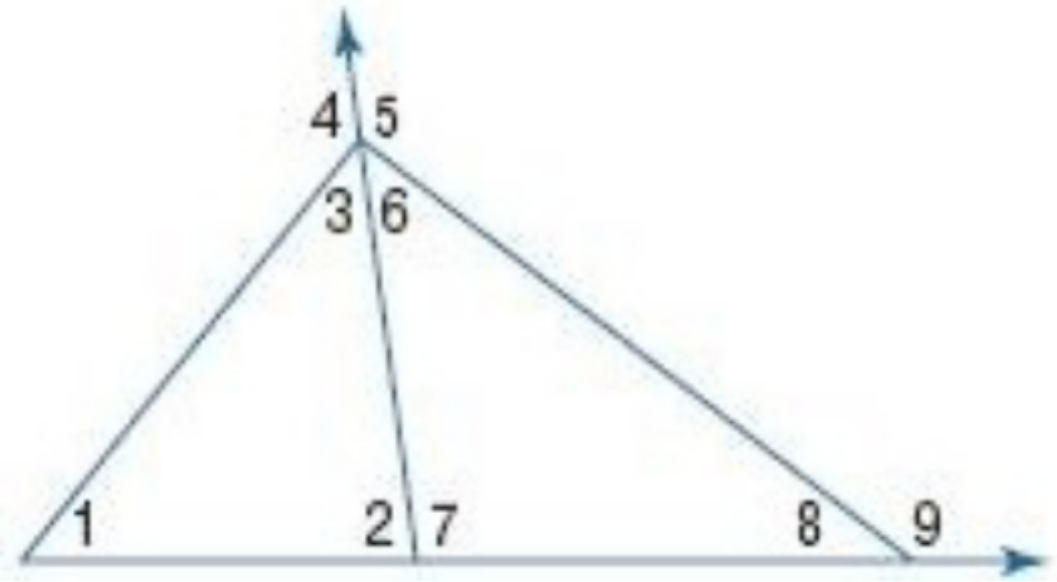
Refer to the figure to list all the angles that satisfy the stated condition.



measures greater than $m\angle 1$

Example 2

Refer to the figure to list all the angles that satisfy the stated condition.

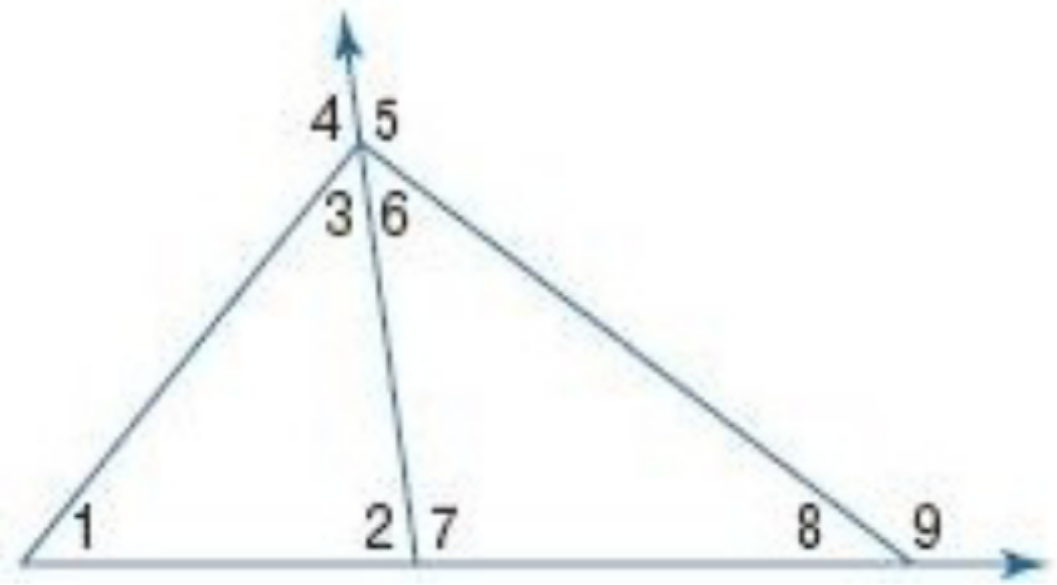


measures greater than $m\angle 1$

$\angle 4, \angle 7$

Example 2

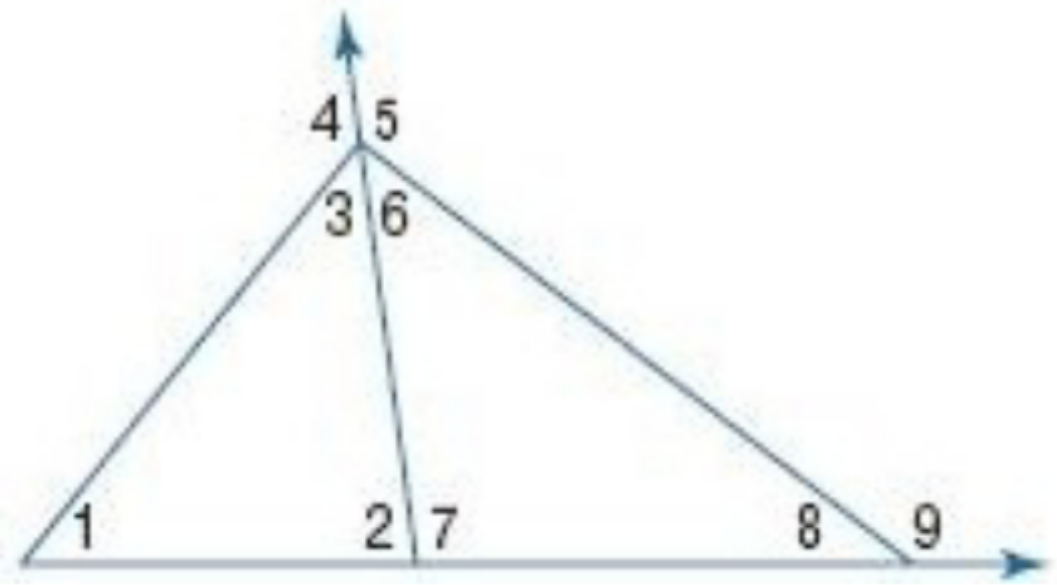
Refer to the figure to list all the angles that satisfy the stated condition.



measures less than $m\angle 4$

Example 2

Refer to the figure to list all the angles that satisfy the stated condition.

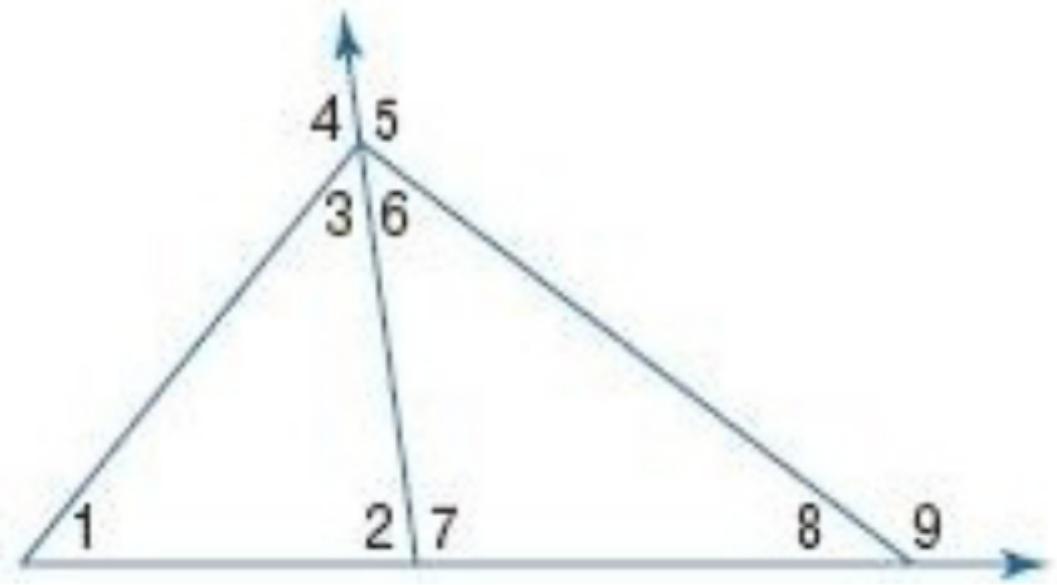


measures less than $m\angle 4$

$\angle 1, \angle 2$

Example 2

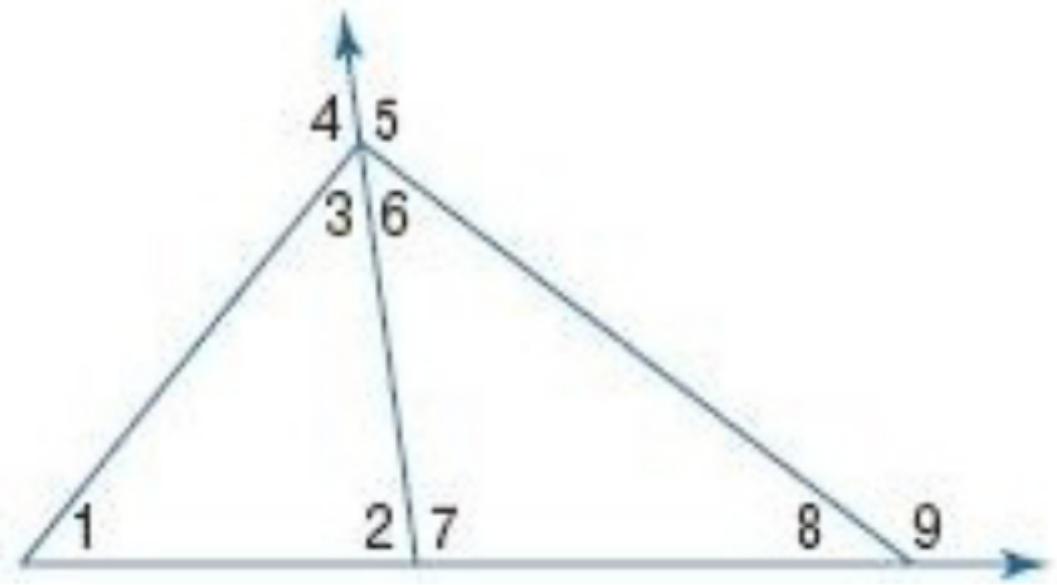
Refer to the figure to list all the angles that satisfy the stated condition.



measures greater than $m\angle 8$

Example 2

Refer to the figure to list all the angles that satisfy the stated condition.

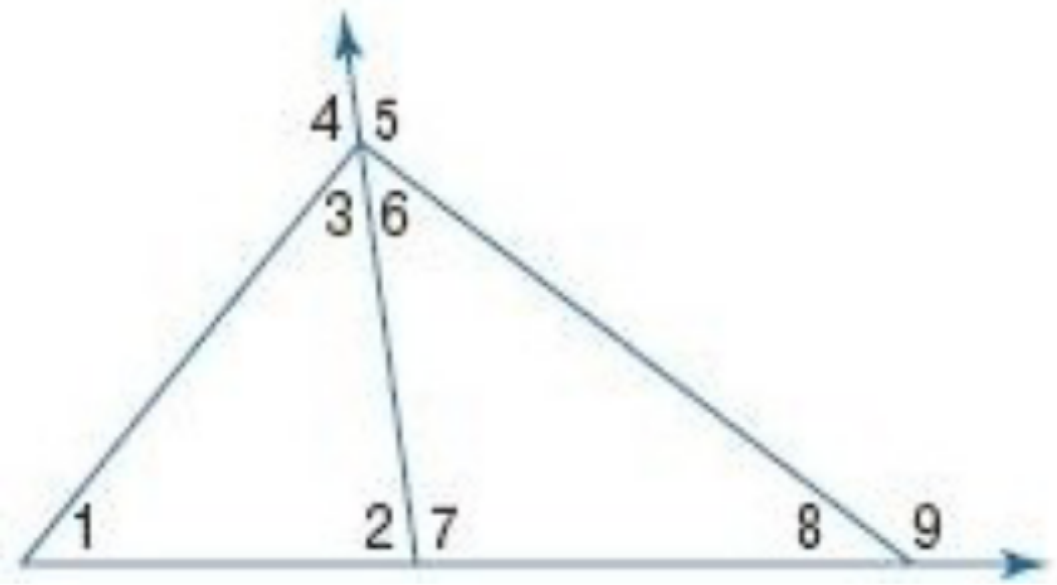


measures greater than $m\angle 8$

$\angle 2, \angle 5$

Example 2

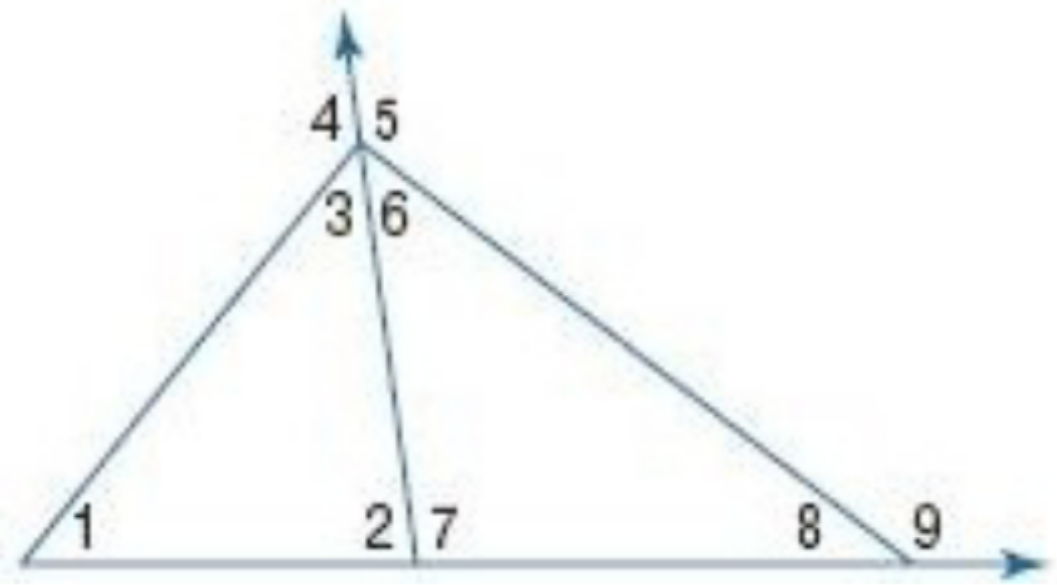
Refer to the figure to list all the angles that satisfy the stated condition.



measures less than $m\angle 9$

Example 2

Refer to the figure to list all the angles that satisfy the stated condition.

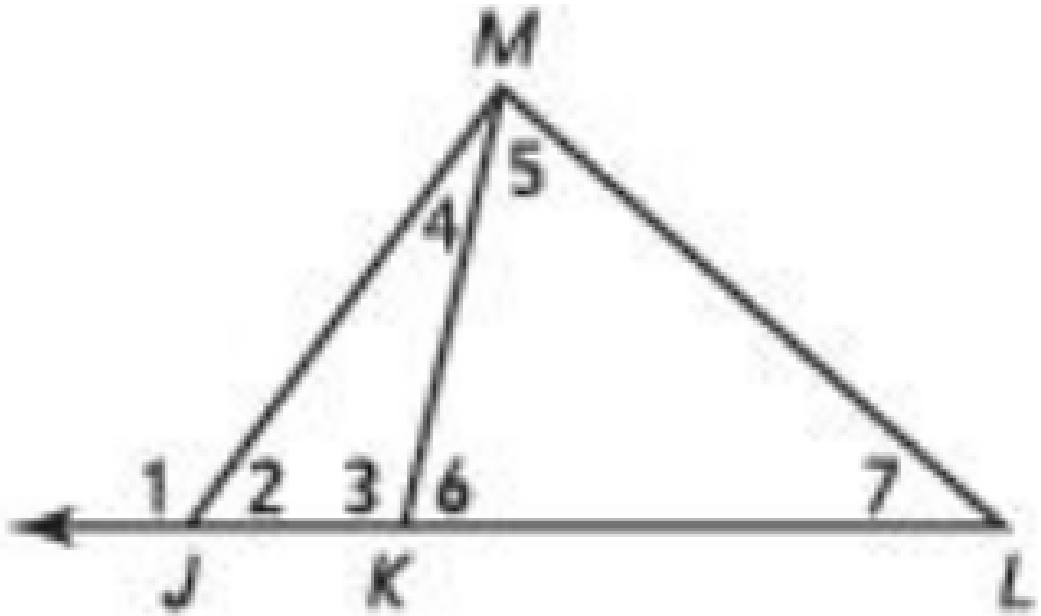


measures less than $m\angle 9$

$\angle 1, \angle 3, \angle 6, \angle 7$

Example 3

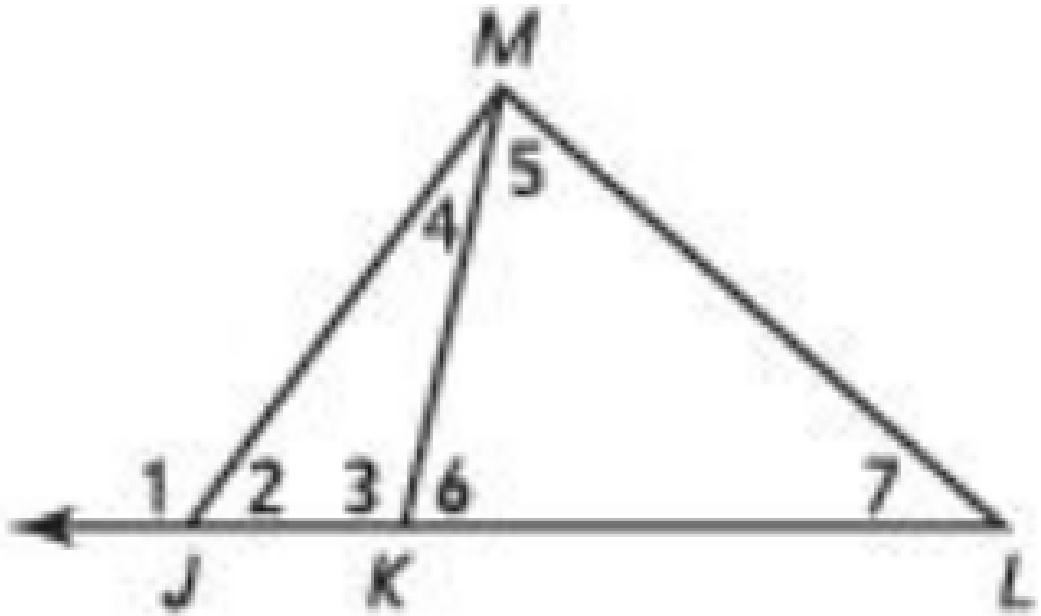
Refer to the figure to determine the inequality symbol that makes the statement correct.



$m\angle 1 \_\_\_\_ m\angle 3$

Example 3

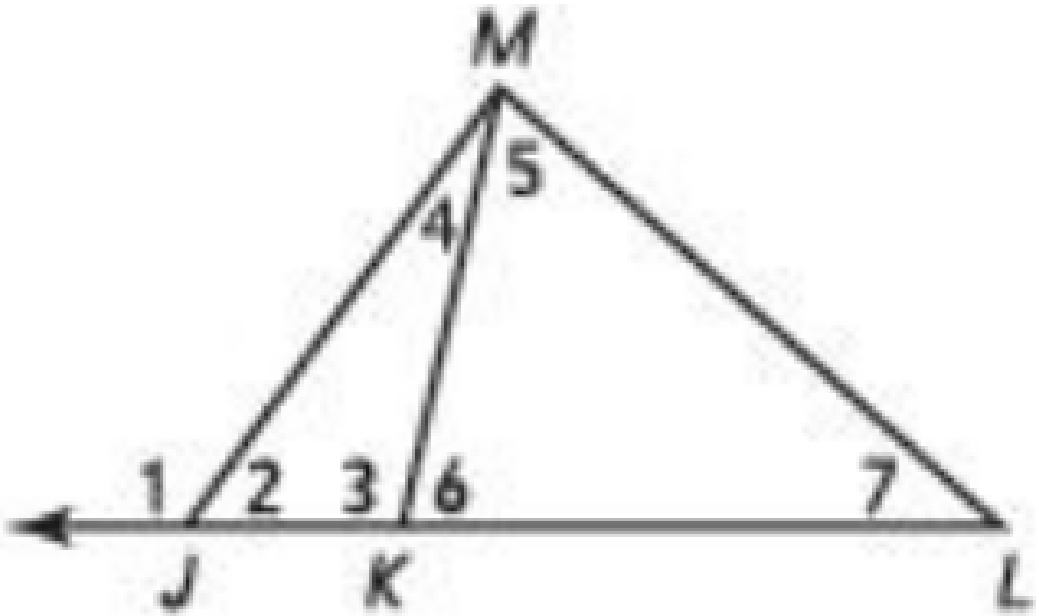
Refer to the figure to determine the inequality symbol that makes the statement correct.



$m\angle 1 > m\angle 3$

Example 3

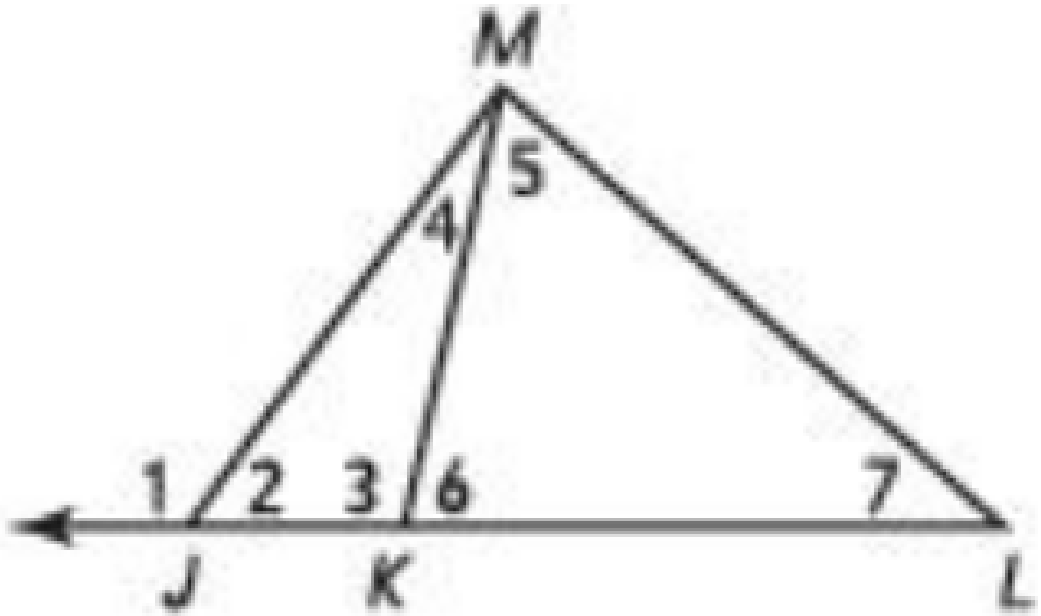
Refer to the figure to determine the inequality symbol that makes the statement correct.



$m\angle 5 \_\_\_\_ m\angle 3$

Example 3

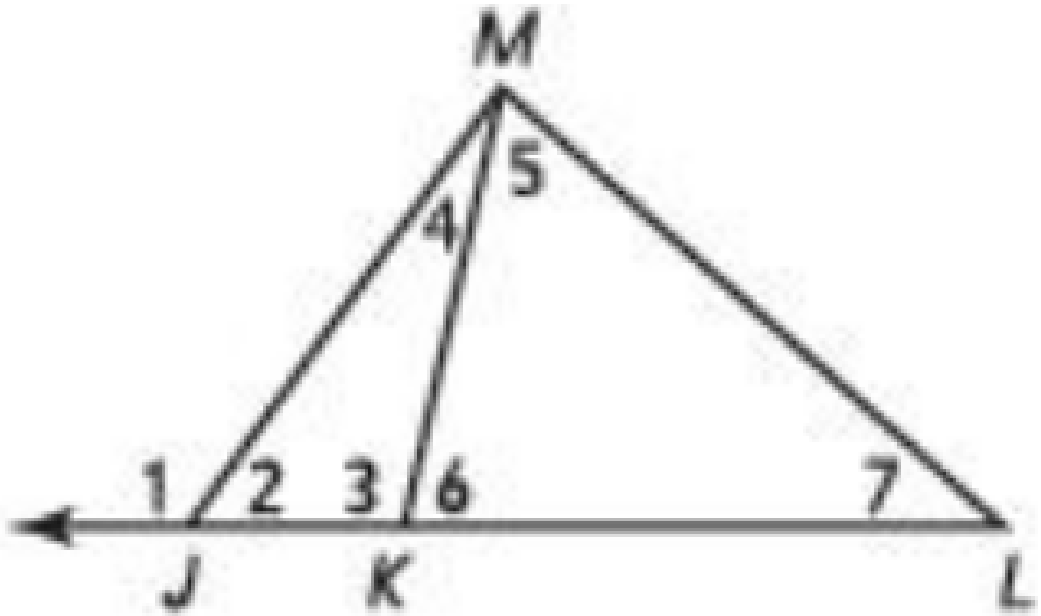
Refer to the figure to determine the inequality symbol that makes the statement correct.



$m\angle 5 < m\angle 3$

Example 3

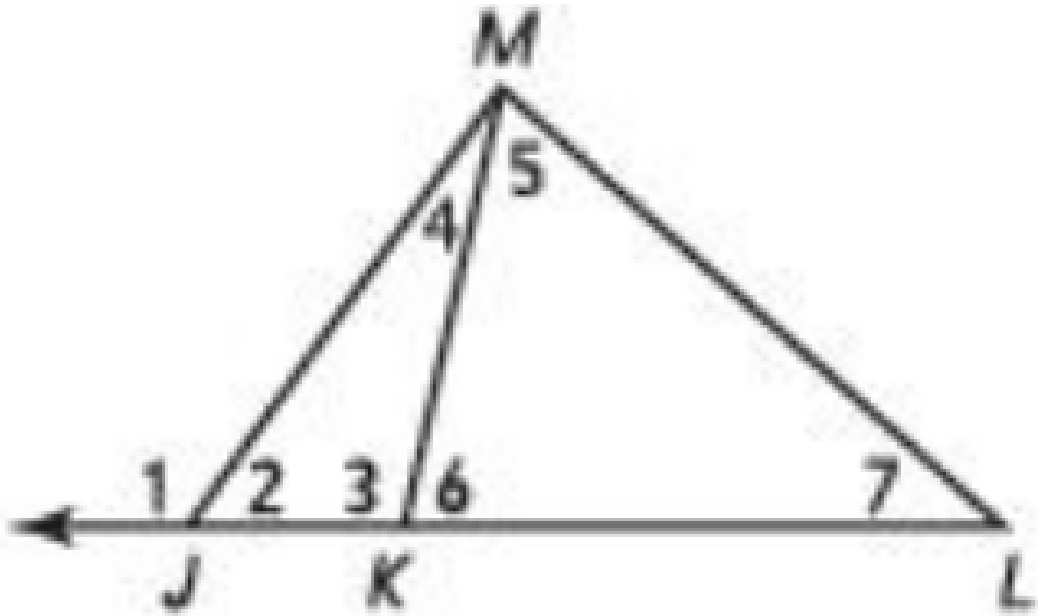
Refer to the figure to determine the inequality symbol that makes the statement correct.



$m\angle 7 \_\_\_\_ m\angle 1$

Example 3

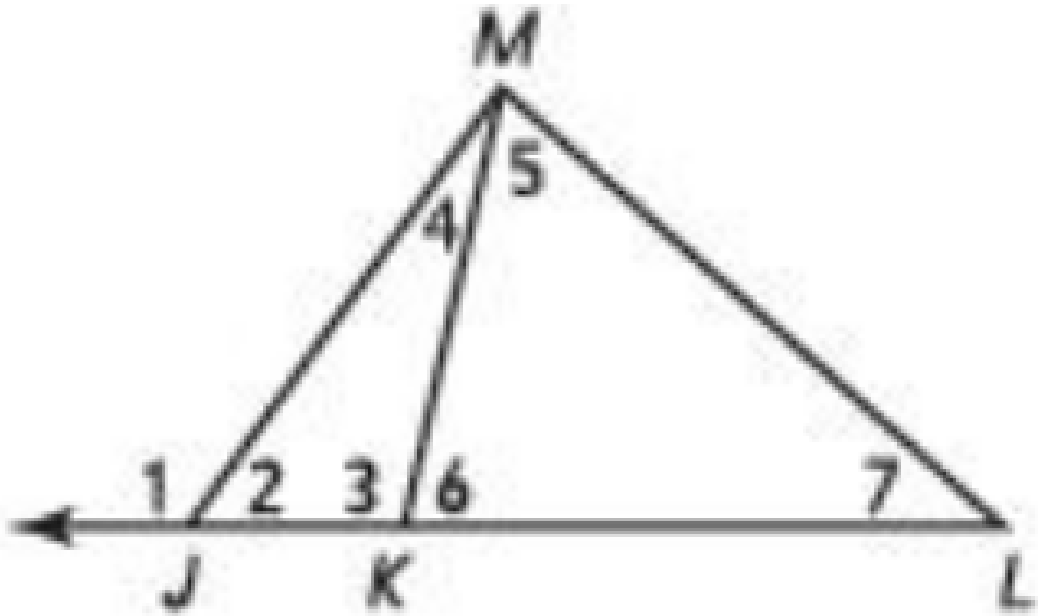
Refer to the figure to determine the inequality symbol that makes the statement correct.



$m\angle 7 < m\angle 1$

Example 3

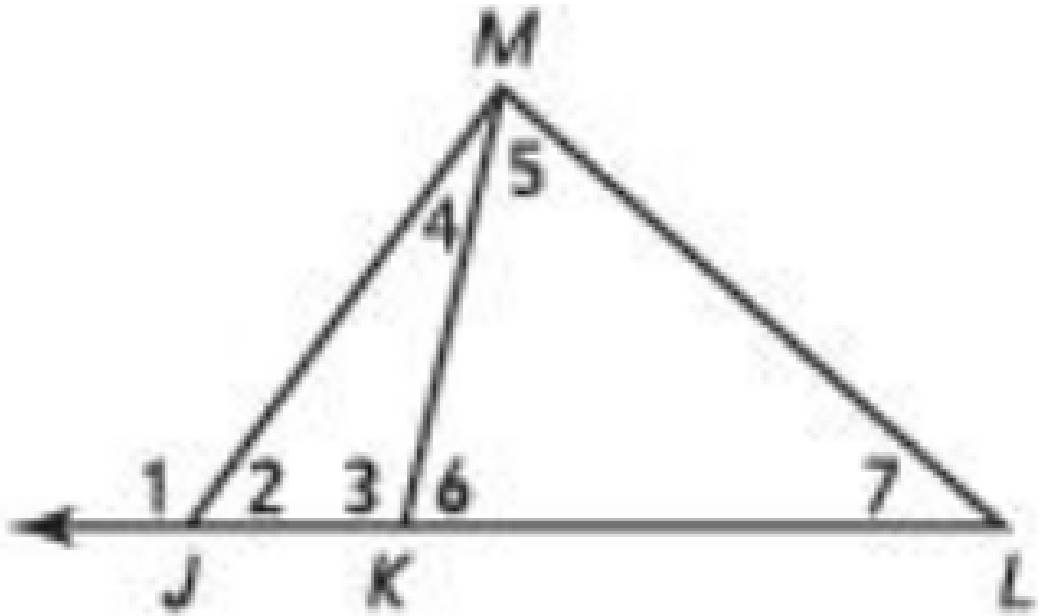
Refer to the figure to determine the inequality symbol that makes the statement correct.



$m\angle 4 \_\_\_\_ m\angle 6$

Example 3

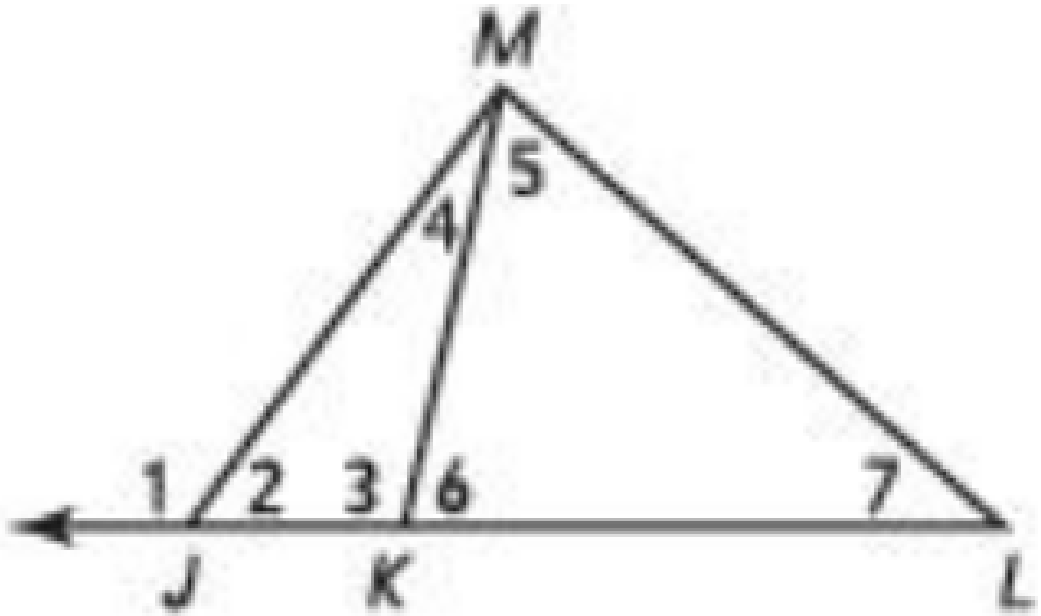
Refer to the figure to determine the inequality symbol that makes the statement correct.



$m\angle 4 < m\angle 6$

Example 3

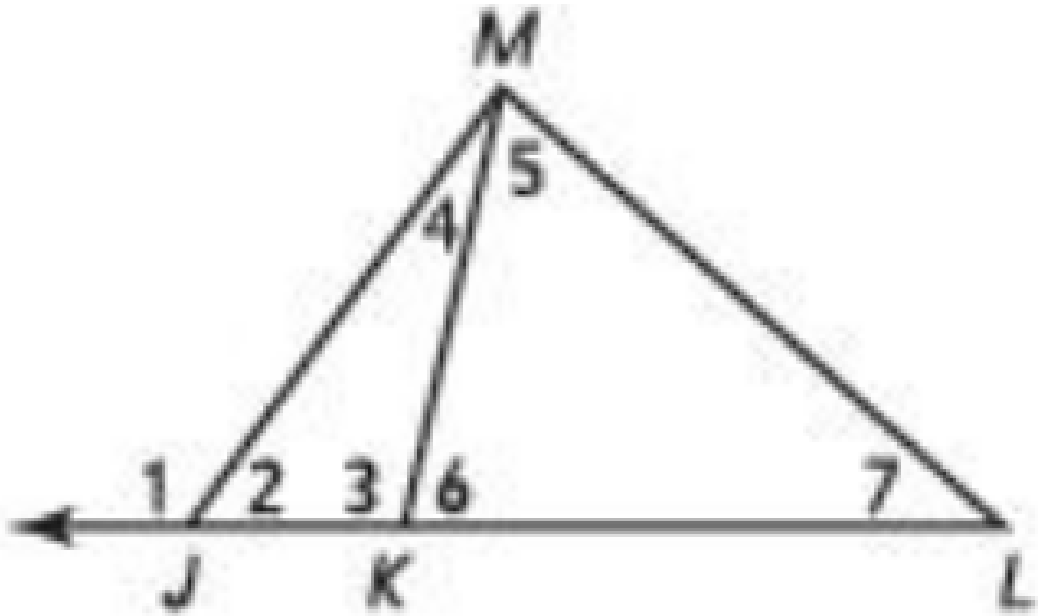
Refer to the figure to determine the inequality symbol that makes the statement correct.



$m\angle 3 \_\_\_\_ m\angle 7$

Example 3

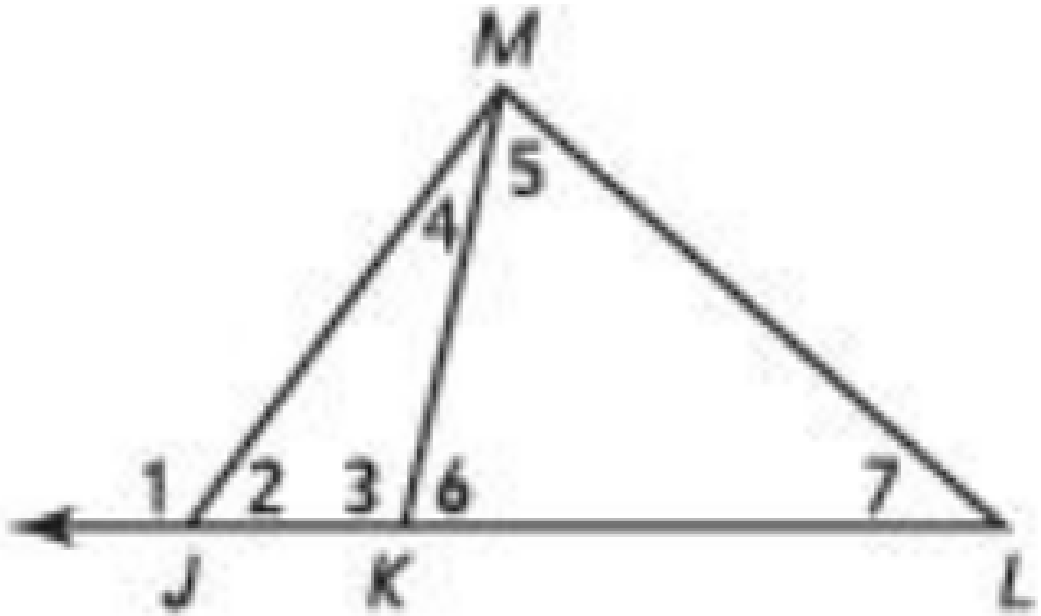
Refer to the figure to determine the inequality symbol that makes the statement correct.



$m\angle 3 > m\angle 7$

Example 3

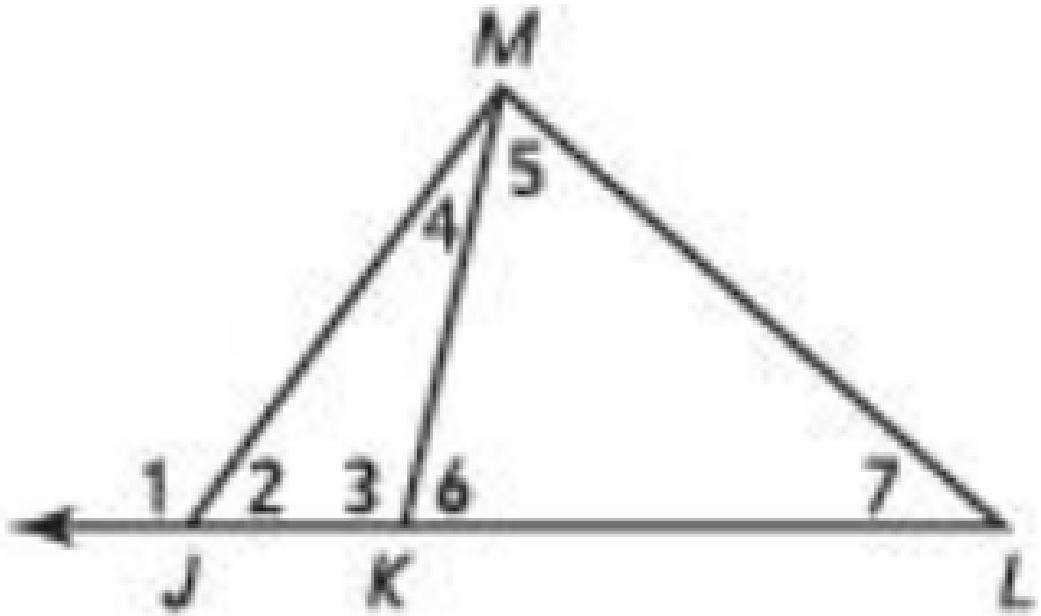
Refer to the figure to determine the inequality symbol that makes the statement correct.



$m\angle 2 \_\_\_\_ m\angle 6$

Example 3

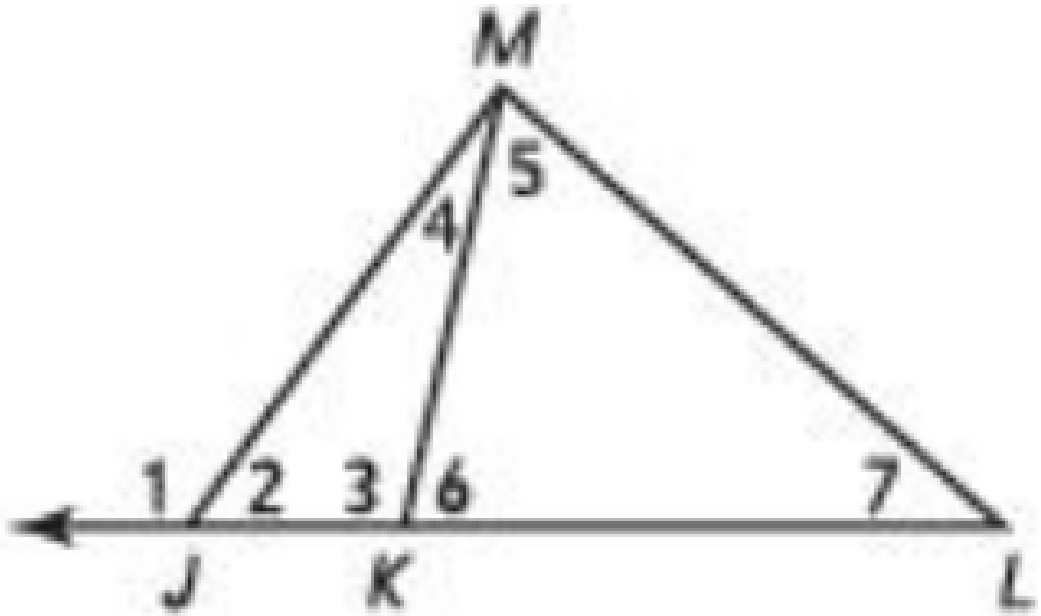
Refer to the figure to determine the inequality symbol that makes the statement correct.



$m\angle 2 < m\angle 6$

Example 3

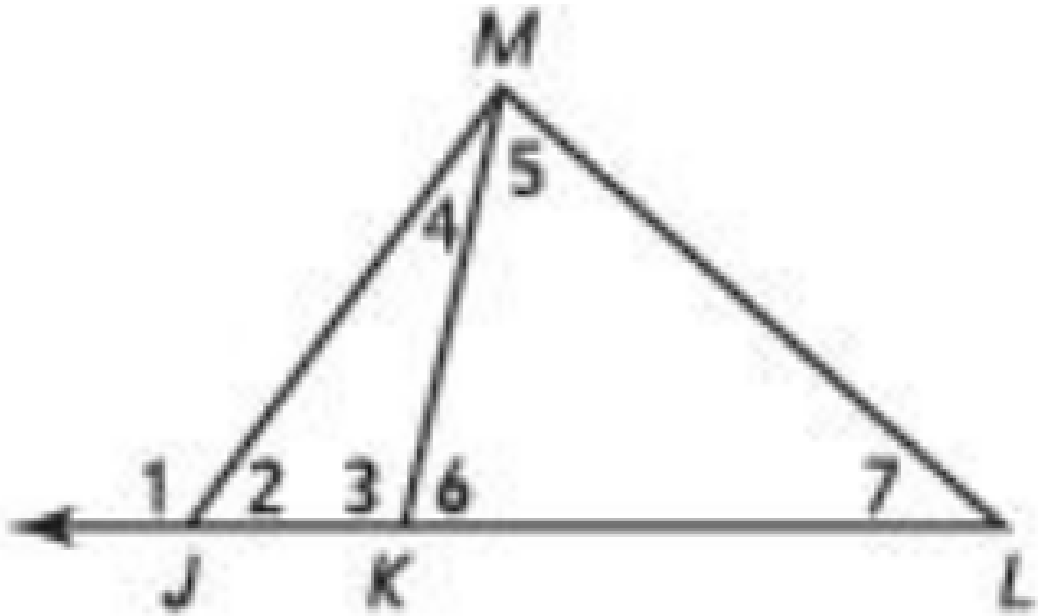
Refer to the figure to determine the inequality symbol that makes the statement correct.



$m\angle 1 \_\_\_\_ m\angle 5$

Example 3

Refer to the figure to determine the inequality symbol that makes the statement correct.



$m\angle 1 > m\angle 5$

Thank you for attending the virtual class.