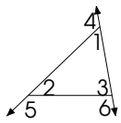
Lesson 4.1.1: Exterior Angle Inequality Theorem

Exterior Angle: the angle between a side of a polygon and an extended adjacent side
Remote Interior Angle: an interior angle that is not adjacent to the exterior angle
Exterior Angle Inequality Theorem: The measure of an exterior angle of a triangle is greater than the measure of either remote interior angle.

Practice Exercises 4.1.1

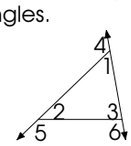
A. Determine the remote interior angles in relation to the given exterior angle.

1. $\angle 4$
2. $\angle 5$
3. $\angle 6$



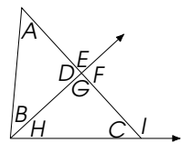
B. Determine the exterior angle in relation to each pair of remote interior angles.

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



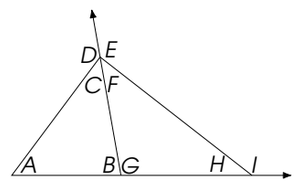
C. Refer to the figure to determine whether each statement is True or False.

1. $m\angle E > m\angle A$
2. $m\angle B < m\angle E$
3. $m\angle F > m\angle H$
4. $m\angle C > m\angle F$
5. $m\angle G > m\angle I$
6. $m\angle I < m\angle H$
7. $m\angle D > m\angle H$
8. $m\angle C > m\angle D$
9. $m\angle G > m\angle A$
10. $m\angle B > m\angle G$



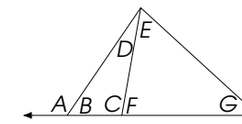
D. Refer to the figure to list all the angles that satisfy the stated condition.

1. measures greater than $m\angle A$
2. measures less than $m\angle B$
3. measures greater than $m\angle C$
4. measures less than $m\angle I$
5. measures greater than $m\angle G$
6. measures less than $m\angle E$
7. measures greater than $m\angle F$
8. measures less than $m\angle D$
9. measures greater than $m\angle H$
10. measures less than $m\angle G$



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

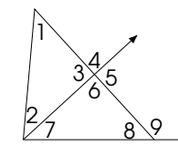
1. $m\angle A \_\_ m\angle C$
2. $m\angle E \_\_ m\angle C$
3. $m\angle G \_\_ m\angle A$
4. $m\angle D \_\_ m\angle F$
5. $m\angle C \_\_ m\angle G$
6. $m\angle B \_\_ m\angle F$
7. $m\angle A \_\_ m\angle E$
8. $m\angle D \_\_ m\angle A$
9. $m\angle F \_\_ m\angle D$
10. $m\angle C \_\_ m\angle E$



Activity 4.1.1

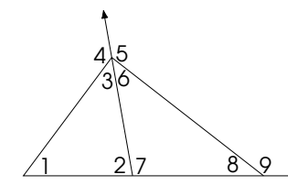
A. Refer to the figure to determine whether each statement is True or False.

1. $m\angle 4 > m\angle 1$
2. $m\angle 5 < m\angle 8$
3. $m\angle 9 > m\angle 6$
4. $m\angle 2 > m\angle 4$
5. $m\angle 8 > m\angle 5$
6. $m\angle 7 < m\angle 9$
7. $m\angle 9 > m\angle 1$
8. $m\angle 8 > m\angle 3$
9. $m\angle 6 > m\angle 1$
10. $m\angle 2 > m\angle 4$



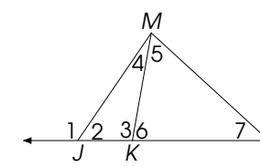
B. Refer to the figure to list all the angles that satisfy the stated condition.

1. measures greater than $m\angle 7$
2. measures less than $m\angle 7$
3. measures greater than $m\angle 6$
4. measures less than $m\angle 2$
5. measures greater than $m\angle 2$
6. measures less than $m\angle 5$
7. measures greater than $m\angle 1$
8. measures less than $m\angle 4$
9. measures greater than $m\angle 8$
10. measures less than $m\angle 9$



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

1. $m\angle 1 \_\_ m\angle 3$
2. $m\angle 5 \_\_ m\angle 3$
3. $m\angle 7 \_\_ m\angle 1$
4. $m\angle 4 \_\_ m\angle 6$
5. $m\angle 3 \_\_ m\angle 7$
6. $m\angle 2 \_\_ m\angle 6$
7. $m\angle 1 \_\_ m\angle 5$
8. $m\angle 4 \_\_ m\angle 1$
9. $m\angle 6 \_\_ m\angle 4$
10. $m\angle 3 \_\_ m\angle 5$



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Practice Exercises 4.1.1

A. Determine the remote interior angles in relation to the given exterior angle.

1. $\angle 4$
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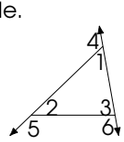
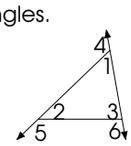
3. $\angle 6$



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

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



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

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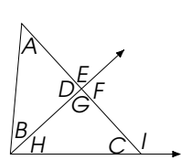

D. Refer to the figure to list all the angles that satisfy the stated condition.

1. measures greater than $m\angle A$
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3. measures greater than $m\angle C$
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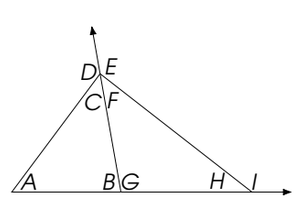
5. measures greater than $m\angle G$
6. measures less than $m\angle E$
7. measures greater than $m\angle F$
8. measures less than $m\angle D$
9. measures greater than $m\angle H$
10. measures less than $m\angle G$



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

1. $m\angle A \_\_ m\angle C$
2. $m\angle E \_\_ m\angle C$
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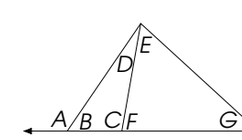
5. $m\angle C \_\_ m\angle G$
6. $m\angle B \_\_ m\angle F$
7. $m\angle A \_\_ m\angle E$
8. $m\angle D \_\_ m\angle A$
9. $m\angle F \_\_ m\angle D$
10. $m\angle C \_\_ m\angle E$



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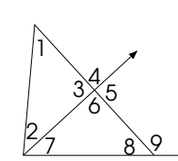

B. Refer to the figure to list all the angles that satisfy the stated condition.

1. measures greater than $m\angle 7$
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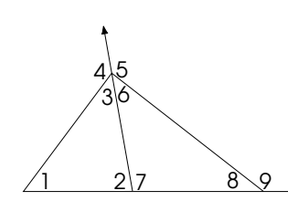
4. measures less than $m\angle 2$
5. measures greater than $m\angle 2$
6. measures less than $m\angle 5$
7. measures greater than $m\angle 1$
8. measures less than $m\angle 4$
9. measures greater than $m\angle 8$
10. measures less than $m\angle 9$



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

1. $m\angle 1 \_\_ m\angle 3$
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5. $m\angle 3 \_\_ m\angle 7$
6. $m\angle 2 \_\_ m\angle 6$
7. $m\angle 1 \_\_ m\angle 5$
8. $m\angle 4 \_\_ m\angle 1$
9. $m\angle 6 \_\_ m\angle 4$
10. $m\angle 3 \_\_ m\angle 5$