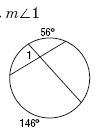
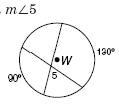
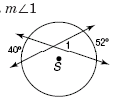
Math 3 8.9 Angle Measures and Segment Lengths Unit 8

*SWBAT apply the rules and theorems of segments to solve for unknowns.*

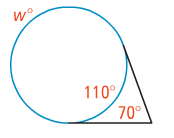
|  |  |
| --- | --- |
| **Theorem 1:** | **Theorem 2:** |
| The measure of an angle formed by two lines that intersect inside a circle is half the sum of the measures of the intercepted arcs. | The measure of an angle formed by two lines that intersect outside a circle is half the difference of the measures of the intercepted arcs. |
|  |  |

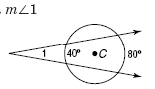
**Example 1:** Find each measure.

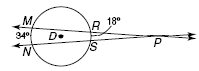




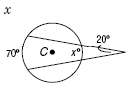
**Example 2:** Find the following angles.

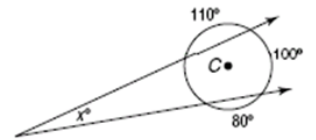


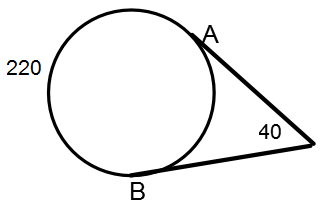
1. m∠MPN
2. 



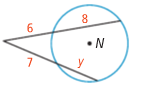
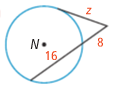
**You Try!** Find the following angles.



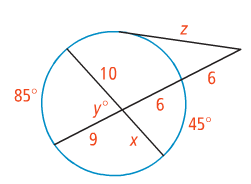
2. x
3. Arc AB



|  |  |  |
| --- | --- | --- |
| **Theorem 3:** | | |
| For a given point and circle, the product of the lengths of the two segments from the point to the circle is constant along any line through the point and the circle. | | |
|  |  |  |

**Example 4:** Find the value of the variable in





**You Try!** What is the value of the variable to the nearest tenth?

