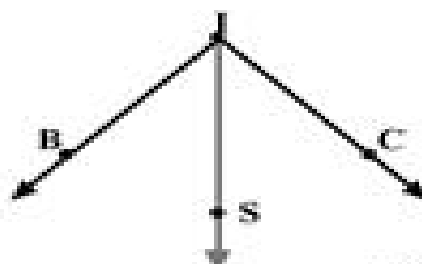


## Angle Bisector Theorem

### ANGLE BISECTOR THEOREM:

The angle bisector divides the angle into two new angles,  
each half the measure of the original angle.



Given:

*IS* bisects  $\angle BIC$

Prove:

$$m\angle BIS = m\angle SIC = \frac{1}{2}m\angle BIC$$

| <u>STATEMENTS</u>   | <u>REASONS</u>                           |
|---|--|
| $m\angle BIS = m\angle SIC$   | <b>Definition of Angle Bisector</b>      |
| $m\angle BIS + m\angle SIC = m\angle BIC$                                     | <b>Angle Addition Postulate</b>          |
| $m\angle BIS + m\angle BIS = m\angle BIC$<br>$= 2(m\angle BIS) = m\angle BIC$ | <b>Substitution Property of Equality</b> |
| $m\angle SIC + m\angle SIC = m\angle BIC$<br>$= 2(m\angle SIC) = m\angle BIC$ | <b>Substitution Property of Equality</b> |
| $m\angle BIS = m\angle SIC = \frac{1}{2}m\angle BIC$                          | <b>Division Property of Equality</b>     |