Geometry Note-Taking Guide **Name:_____**

Period:____

Section 2.2 – Prove Statements about Segments and Angles

Helpful Tips for Completing a Proof:

1. If possible, always label the diagram with the given information or newly acquired information. Labeling a diagram can make useful information stand out, which may have not otherwise.

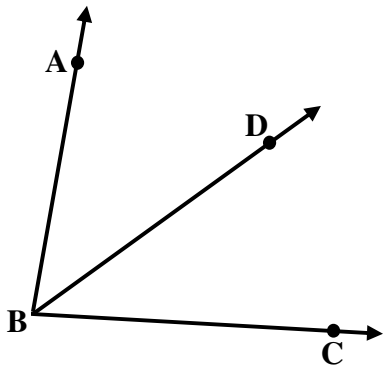
Ex: Tick marks for congruent segments, arcs for congruent angles, and numbers for side lengths.

2. Analyze ALL the previous statements when trying to determine how to get the next statement in the proof. For example, sometimes the 5th statement can be constructed using the 1st and 4th

Ex 1:

Given: $\overrightarrow{BD}$ bisects $\angle ABC$

Prove: $m\angle ABD = \frac{1}{2} m\angle ABC$

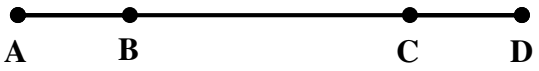


Statement	Reason
1. $\overrightarrow{BD}$ bisects $\angle ABC$	**1.**
2. $\angle ABD \cong \angle DBC$	**2.**
3. $m\angle ABD = m\angle DBC$	**3.**
4. $m\angle ABD + m\angle DBC = m\angle ABC$	**4.**
5. $m\angle ABD + m\angle ABD = m\angle ABC$	**5.**
6. $2(m\angle ABD) = m\angle ABC$	**6.**
7. $m\angle ABD = \frac{1}{2} m\angle ABC$	**7.**

Ex 3:

Given: AC = BD

Prove: AB = CD

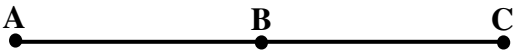


Statement	Reason
1. $AC = BD$	**1.**
2. $AC = AB + BC$	**2.**
3. $BD = BC + CD$	**3.**
4. $AB + BC = BD$	**4.**
5. $AB + BC = BC + CD$	**5.**
6. $AB = CD$	**6.**

Ex 4:

Given: B is the midpoint of AC

Prove: $AB = \frac{1}{2}AC$



Statement	Reason
1. B is the midpoint of AC	**1.**
2. $\overline{AB} \cong \overline{BC}$	**2.**
3. $AB = BC$	**3.**
4. $AB + BC = AC$	**4.**
5. $AB + AB = AC$	**5.**
6. $2AB = AC$	**6.**
7. $AB = \frac{1}{2}AC$	**7.**