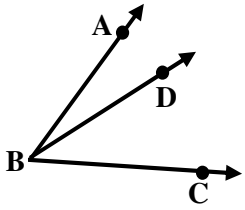
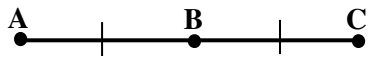
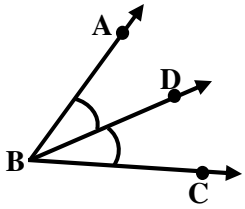
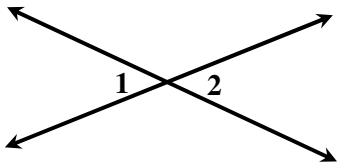
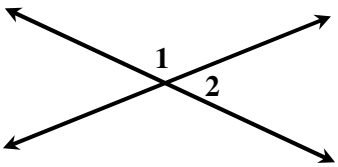
Chapter 2 Summary Sheet

Statements and Reasons for Proofs

Information/Diagram	Statement	Reason
	$AC = AB + BC$	Segment Addition Postulate
	$m\angle ABC = m\angle ABD + m\angle DBC$	Angle Addition Postulate
B is the midpoint of AC 	$AB = BC$	Definition of Midpoint
$\overrightarrow{BD}$ bisects $\angle ABC$ 	$m\angle ABD = m\angle DBC$	Definition of Angle Bisector
	$m\angle 1 = m\angle 2$	Vertical Angles
	$m\angle 1 + m\angle 2 = 180°$	Linear Pair
$\overline{AB} \cong \overline{CD}$	$AB = CD$	Definition of Congruence
$AB = CD$	$\overline{AB} \cong \overline{CD}$	Definition of Congruence
$AB = CD$ and $CD = EF$	$AB = EF$	Transitive Property

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 5^{th} statement can be constructed using the 1^{st} and 4^{th} .

Addition Property	If a = b, then a + c = b + c
Subtraction Property	If a = b, then a – c = b - c
Multiplication Property	If a = b, then ac = bc
Division Property	If a = b and $c \neq 0$, then $a \div c = b \div c$
Substitution Property	If a = b, then a can be substituted for b in any equation or expression
Distributive Property	a(b + c) = ab + ac
Simplification	If x = 5 + 4, then x = 9
Reflexive Property (Reflection)	For any real number a, a = a
Transitive Property (Train)	If a = b and b = c, then a = c.