FM Geometry

Name: Key

Chapter 2 Quiz Review Sheet

Date: _____ Pd: _____

Determine whether the following conditional statement is true or false.
Then write the converse and determine whether the converse statement is true or false.
You must justify your answer. If either statement is false, provide a counterexample.

If $x = -3$, then $|x+1| = 2$. (T) F

$|-3+1|$
$|-2|$
2 ✓

Converse: If $|x+1| = 2$, then $x = -3$. T (F)

$|x+1| = 2$

$x+1 = 2$ or $x+1 = -2$
$x = 1$ or $x = -3$

CE: $x = 1$ $|1+1| = 2$ but $1 \neq -3$.
hyp True conclusion False

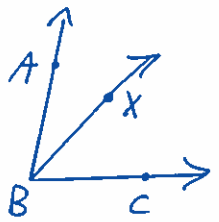
Can you write a true biconditional statement from the information above?
Explain why you can or cannot. If you can, write it below.

You cannot write a true biconditional statement because both the original statement and converse statement must be true.

Prove the Angle Bisector Theorem #1 on the back of this paper!

Chapter 2 Quiz Review Sheet

Proof of the Angle Bisector Theorem #1:



If $\overrightarrow{BX}$ is the bisector of $\angle ABC$, then $m\angle ABX = m\angle XBC$, $m\angle ABX = \frac{1}{2} m\angle ABC$, and $m\angle XBC = \frac{1}{2} m\angle ABC$.

Given: $\overrightarrow{BX}$ is the bisector of $\angle ABC$

Prove: $m\angle ABX = m\angle XBC$, $m\angle ABX = \frac{1}{2} m\angle ABC$, $m\angle XBC = \frac{1}{2} m\angle ABC$

Statements	Reasons
1. $\overrightarrow{BX}$ is the bisector of $\angle ABC$	1. Given
2. $\angle ABX \cong \angle XBC$	2. Definition of $\angle$ bisector
3. $m\angle ABX = m\angle XBC$	3. Definition of $\cong$ angles
4. $m\angle ABX + m\angle XBC = m\angle ABC$	4. $\angle$ Addition Postulate
5. $m\angle ABX + m\angle ABX = m\angle ABC$	5. Subst. prop. of $=$ (3 → 4)
6. $2\, m\angle ABX = m\angle ABC$	6. Distributive Property
7. $m\angle ABX = \frac{1}{2} m\angle ABC$	7. Division Prop. of $=$
8. $m\angle XBC = \frac{1}{2} m\angle ABC$	8. Subst. prop. of $=$ (3 → 7)