**Activity 2.3.4a Proving the Isosceles Triangle Converse**

**Fill in the blanks in this proof.**

Given ∆*ABC* with *m*$∠$*ABC= m*$∠$*ACB*

Prove *AB* = *AC*

*Step 1*. Reflect ∆*ABC* over line *AC*.

**

*Step 2*. In ∆*ABC* and ∆*ACB*’

 *m*$∠$*ABC= m*$∠$*AB’C* Why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 *m*$∠$*ABC= m*$∠$*ACB* Why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Therefore *m*$∠$*ACB = m*$∠$*AB’C* Why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



*Step 3*. Show that *m*$∠$*ABC = m*$∠$*ACB’*

 *m*$∠$*\_\_\_\_\_= m*$∠$*\_\_\_\_\_\_* Why? \_\_\_\_\_\_\_\_\_\_\_\_

 *m*$∠$*\_\_\_\_\_= m*$∠$*\_\_\_\_\_\_* Why? \_\_\_\_\_\_\_\_\_\_\_\_

Therefore, *m*$∠$*ABC = m*$∠$*ACB’* Why? \_\_\_\_\_\_\_\_\_\_\_\_



*Step 4. BC* = *B’C* Why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Step 5.* From Steps 2, 3, and 4 we can prove that ∆*ABC* and ∆*ACB’* are congruent, by the \_\_\_\_\_\_\_ Congruence Theorem.

**

*Step 6. AB = AC* since corresponding parts of congruent triangles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.