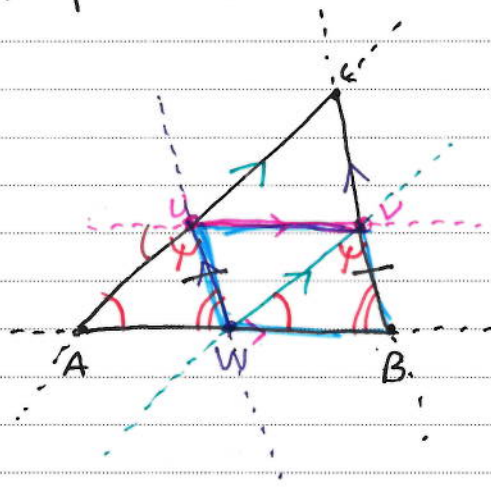


Homework #1 Problem #2 Kaitlyn Sammons

Given  $UV$  is parallel to  $AB$ ,  $UW$  is parallel to  $BC$ , and  $VW$  is parallel to  $AC$ , We need to prove that  $\triangle AWU \cong \triangle WBV$

1. By BF9 we can extend all line segments

2. Since  $\overline{UV} \parallel \overline{AB}$  and the transversals  $\overline{AC} \parallel \overline{WV}$ , By theorem 2A,  $\angle CAB = \angle VWB$



3. Since  $\overline{UV} \parallel \overline{AB}$  and the transversals  $\overline{WV} \parallel \overline{BC}$ , By theorem 2A,  $\angle AWU = \angle ABC$

4. Since  $\overline{AC} \parallel \overline{VW}$  and the transversals  $\overline{UV} \parallel \overline{BC}$ , By theorem 2A,  $\angle AUW = \angle WVB$

5. lines  $\overline{UV}$ ,  $\overline{VB}$ ,  $\overline{BW}$ , and  $\overline{WU}$  form a parallelogram by definition of a parallelogram

6. By definition of a parallelogram,  $\overline{UW} = \overline{VB}$

7. By steps 2-6 and BF3,  $\triangle AWU \cong \triangle WBV$  as claimed.

Q.E.D.