

Theorem 6

Given $C \in \overleftrightarrow{AB}$

We are showing that one set is a subset of another
So we start by saying

Let $X \in \overleftrightarrow{AB}$

There are 4 points we know on \overleftrightarrow{AB} (A, C, X, B)
and they are collinear

So by axiom 5, these points have an order

So by theorem 5, ^{we know} each point lies on the line defined
by any two of the
other three points.

So $X \in \overleftrightarrow{AC}$

Conclusion: $\overleftrightarrow{AB} \subseteq \overleftrightarrow{AC}$.