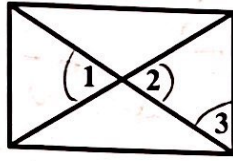


# Geometry Honors

## Proof Worksheet #5

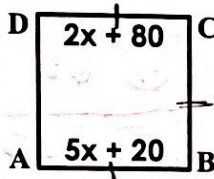
Name Answer Key Period H. Geo

- 1) Given:  $\angle 1 \cong \angle 3$   
 Prove:  $\angle 2 \cong \angle 3$



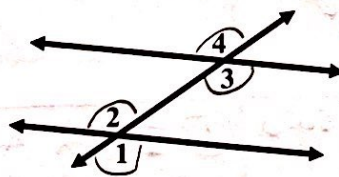
Statements	Reasons
① $\angle 1 \cong \angle 3$ diagram	① Given
② $\angle 1$ and $\angle 2$ are vert. $\angle$ s	② Assumed by diagram
③ $\angle 1 \cong \angle 2$	③ If $\angle$ s are vert. $\angle$ s, then they are $\cong$ .
④ $\angle 2 \cong \angle 3$	④ Substitution POC.

- 2) Given:  $\overline{AB} \cong \overline{BC}$ ,  $\overline{BC} \cong \overline{DC}$   
 Prove:  $x = 20$



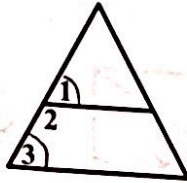
Statements	Reasons
① $\overline{AB} \cong \overline{BC}$ $\overline{BC} \cong \overline{DC}$ diagram	① Given
② $\overline{AB} \cong \overline{DC}$	② Transitive POC
③ $AB = DC$	③ If segs are $\cong$ , then their measures are =.
④ $AB = 5x + 20$ $DC = 2x + 80$	④ Assumed by diagram
⑤ $5x + 20 = 2x + 80$	⑤ Substitution POE
⑥ $3x + 20 = 80$	⑥ Subtraction POE
⑦ $3x = 60$	⑦ Subtraction POE
⑧ $x = 20$	⑧ Division POE

- 3) Given:  $\angle 2 \cong \angle 3$   
 Prove:  $\angle 1 \cong \angle 4$



Statements	Reasons
① $\angle 2 \cong \angle 3$ diagram	① Given
② $\angle 3$ and $\angle 4$ are vert. $\angle$ s $\angle 1$ and $\angle 2$ are vert. $\angle$ s	② Assumed by diagram
③ $\angle 3 \cong \angle 4$ $\angle 1 \cong \angle 2$	③ If $\angle$ s are vert, then they are $\cong$ .
④ $\angle 2 \cong \angle 4$	④ Transitive POC
⑤ $\angle 1 \cong \angle 4$	⑤ Transitive POC

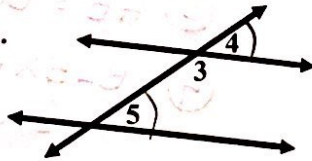
- 4) Given:  $\angle 1$  &  $\angle 2$  are supp.  
 $\angle 2$  &  $\angle 3$  are supp.  
 $m\angle 1 = 65^\circ$   
 Prove:  $m\angle 3 = 65^\circ$



\*can also go equal route

Statements	Reasons
① $\angle 1$ and $\angle 2$ are supp $\angle 2$ and $\angle 3$ are supp $m\angle 1 = 65^\circ$ diagram	① Given
② $\angle 1 \cong \angle 3$	② If 2 $\angle$ s are supp to the same $\angle$ , then they are $\cong$ .
③ $m\angle 1 = m\angle 3$	③ If $\angle$ s are $\cong$ , then they have equal measures
④ $65^\circ = m\angle 3$	④ Substitution POE
⑤ $m\angle 3 = 65^\circ$	⑤ Symmetric POE

- 5) Given:  $\angle 3$  &  $\angle 4$  are supp.  
 $m\angle 3 + m\angle 5 = 180^\circ$   
 Prove:  $\angle 5 \cong \angle 4$



\*can also go equal route.

Statements	Reasons
① $\angle 3$ and $\angle 4$ are supp. $m\angle 3 + m\angle 5 = 180^\circ$ diagram	① Given
② $\angle 3$ and $\angle 5$ are supp	② If 2 $\angle$ measures sum to $180^\circ$ , then the $\angle$ s are Supplementary
③ $\angle 5 \cong \angle 4$	③ If $\angle$ s are supplementary to the same $\angle$ , then they are $\cong$ .