Name: _____ Date: _____

Day 7 – Triangle Proofs

- Two-column geometric proofs are essentially just tables with _____ on the left and a _____ on the right.
- The statements we make are going to be the _____ we take toward solving our problem.
- Reasons can consist of information given within the problem itself, definitions, postulates or theorems.

If…		Then the reason is…
an angle or side is ALREADY marked on the picture, or if it is given in the directions,		
the shapes share a side		
parallel lines create **alternate interior angles**		
you see **vertical angles**		
one of the points is a **midpoint** of a line segment		
A line segment **bisects a side**		
A line segment **bisects an angle**		
the statement states that the triangles are congruent,		
the triangles have already been proven to be congruent, and now we are trying to prove a side or angle is congruent,		

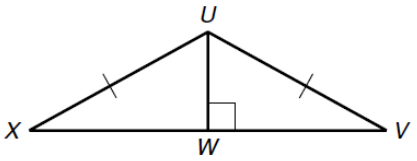
Don't forget to ALWAYS mark your pictures!

Complete the following proofs:

Practice #1:

Given: ΔUXW *and* ΔUVW are right triangles, $\overline{UX} \cong \overline{UV}$

Prove: $\angle X \cong \angle V$

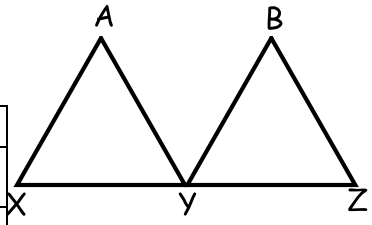


Statements	Reasons
1) ΔUXW and ΔUVW are rt. triangles	
2) $\overline{UX} \cong \overline{UV}$	
3) $\overline{UW} \cong \overline{UW}$	
4)	
5) $\angle X \cong \angle V$	

Practice #2:

Given: Y is the midpoint of $\overline{XZ}, \overline{AY} \cong \overline{BY}$, and $\angle AYX \cong \angle BYZ.$.

Prove: $\triangle XYA \cong \triangle ZYB$

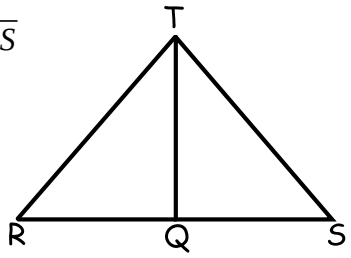


Statements	Reasons
1) $\overline{AY} \cong \overline{BY}$	
2) $\angle AYX \cong \angle BYZ.$	
3) Y is the midpoint of $\overline{XZ}$	
4) $\overline{XY} \cong \overline{YZ}$	
5) $\triangle XYA \cong \triangle ZYB$	

Practice #3:

Given: $\triangle RTS$ is isosceles with legs $\overline{RT}$ and $\overline{TS}$. Q is the midpoint of $\overline{RS}$

Prove: $\triangle RTQ \cong \triangle STQ$

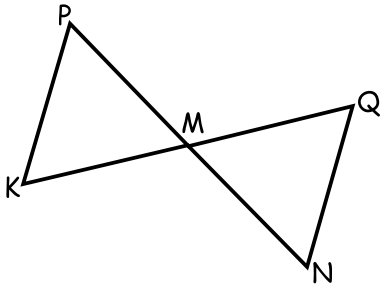


Statements	Reasons
1)	
2) $\overline{RT} \cong \overline{TS}$	
3)	
4)	
5)	
6) $\triangle RTQ \cong \triangle STQ$	

Practice #4:

Given: $\angle P \cong \angle N, \overline{PM} \cong \overline{NM}$

Prove: $\triangle PMK \cong \triangle NMQ$

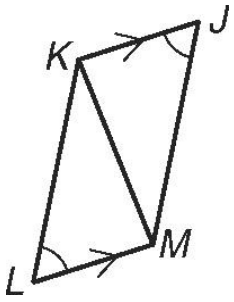


Statements	Reasons
1)	
2)	
3)	
4)	

Practice #5:

Given: $\angle L \cong \angle J, \overline{LM} \parallel \overline{KJ}$

Prove: $\triangle LKM \cong \triangle JMK$



Statements	**Reasons**
1)	
2)	
3)	
4)	
5)	