Proofs Involving Angles NAME: _____

1. $\angle F$ $\angle G$ are supplementary and $\angle H$ and $\angle F$ are supplementary. Complete the proof that $\angle G \cong \angle H$.

	Statement	Reason
1	$\angle F$ and $\angle G$ are supplementary	Given
2	$\angle H$ and $\angle F$ are supplementary	Given
3	$m\angle F + m\angle G = 180°$	
4	$m\angle H + m\angle F = 180°$	Definition of supplementary angles
5	$m\angle F + m\angle G = m\angle H + m\angle F$	Transitive Property of Equality
6	$m\angle G = m\angle H$	Algebra SPOE
7	$\angle G \cong \angle H$	Definition of congruence

2. $\angle V$ and $\angle W$ are complementary and $\angle V$ and $\angle X$ are complementary. Complete the proof that $\angle X \cong \angle W$.

	Statement	Reason
1	$\angle V$ and $\angle W$ are complementary	Given
2	$\angle V$ and $\angle X$ are complementary	Given
3	$m\angle V + m\angle W = 90°$	Definition of complementary angles
4	$m\angle V + m\angle X = 90°$	Definition of complementary angles
5	$m\angle V + m\angle W = m\angle V + m\angle X$	Transitive Property of Equality
6	$m\angle X = m\angle W$	Algebra SPOE
7	$\angle X \cong \angle W$	

3. $\angle J$ and $\angle I$ are complementary and $\angle I$ and $\angle K$ are complementary. Complete the proof that $\angle K \cong \angle J$.

	Statement	Reason
1	$\angle J$ and $\angle I$ are complementary	Given
2	$\angle I$ and $\angle K$ are complementary	Given
3	$m\angle J + m\angle I = 90°$	Definition of complementary angles
4	$m\angle I + m\angle K = 90°$	Definition of complementary angles
5	$m\angle J + m\angle I = m\angle I + m\angle K$	
6	$m\angle K = m\angle J$	Algebra SPOE
7	$\angle K \cong \angle J$	

4. $\angle U$ and $\angle S$ are complementary and $\angle S$ and $\angle T$ are complementary. Complete the proof that $\angle U \cong \angle T$.

	Statement	Reason
1	$\angle U$ and $\angle S$ are complementary	Given
2	$\angle S$ and $\angle T$ are complementary	Given
3	$m\angle U + m\angle S = 90°$	
4	$m\angle S + m\angle T = 90°$	
5	$m\angle U + m\angle S = m\angle S + m\angle T$	Transitive Property of Equality
6	$m\angle U = m\angle T$	Algebra SPOE
7	$\angle U \cong \angle T$	Definition of congruence

5. VW⊥UV and XY⊥YZ. Complete the proof that $\angle UVW \cong \angle XYZ$.

	Statement	Reason
1	VW⊥UV	Given
2	XY⊥YZ	Given
3	$m\angle UVW = 90°$	Definition of perpendicular lines
4	$m\angle XYZ = 90°$	
5	$m\angle UVW = m\angle XYZ$	
6	$\angle UVW \cong \angle XYZ$	

6. $\angle W$and $\angle U$ are supplementary and $\angle V$ and $\angle U$ are supplementary. Complete the proof that $\angle V \cong \angle W$.

	Statement	Reason
1	$\angle W$ and $\angle U$ are supplementary	Given
2	$\angle V$ and $\angle U$ are supplementary	Given
3	$m\angle W + m\angle U = 180°$	Definition of supplementary angles
4	$m\angle V + m\angle U = 180°$	
5	$m\angle W + m\angle U = m\angle V + m\angle U$	
6	$m\angle V = m\angle W$	Algebra SPOE
7	$\angle V \cong \angle W$	

7. UV⊥TU and QR⊥RS. Complete the proof that $\angle TUV \cong \angle QRS$.

	Statement	Reason
1	UV⊥TU	Given
2	QR⊥RS	Given
3	$m\angle TUV = 90°$	
4	$m\angle QRS = 90°$	
5	$m\angle TUV = m\angle QRS$	Transitive Property of Equality
6	$\angle TUV \cong \angle QRS$	

8. UV ⊥ VW and YZ ⊥ XY. Complete the proof that $\angle XYZ \cong \angle UVW$.

	Statement	Reason
1	UV ⊥ VW	Given
2	YZ ⊥ XY	Given
3	$m\angle UVW = 90°$	Definition of perpendicular lines
4	$m\angle XYZ = 90°$	
5	$m\angle UVW = m\angle XYZ$	
6	$\angle XYZ \cong \angle UVW$	

9. $\angle I$ and $\angle G$ are supplementary and $\angle G$ and $\angle H$ are supplementary. Complete the proof that $\angle I \cong \angle H$.

	Statement	Reason
1	$\angle I$ and $\angle G$ are supplementary	
2	$\angle G$ and $\angle H$ are supplementary	
3	$m\angle I + m\angle G = 180°$	
4	$m\angle G + m\angle H = 180°$	
5	$m\angle I + m\angle G = m\angle G + m\angle H$	
6	$m\angle I = m\angle H$	
7	$\angle I \cong \angle H$	

10. $\angle Q$ and $\angle S$ are complementary and $\angle Q$ and $\angle R$ are complementary. Complete the proof that $\angle R \cong \angle S$.

	Statement	Reason
1	$\angle Q$ and $\angle S$ are complementary	
2	$\angle Q$ and $\angle R$ are complementary	
3	$m\angle Q + m\angle S = 90°$	
4	$m\angle Q + m\angle R = 90°$	
5	$m\angle Q + m\angle S = m\angle Q + m\angle R$	
6	$m\angle R = m\angle S$	
7	$\angle R \cong \angle S$	

11. $\angle Q$ and $\angle S$ are supplementary and $\angle Q$ and $\angle R$ are supplementary. Complete the proof that $\angle R \cong \angle S$.

	Statement	Reason
1	$\angle Q$ and $\angle S$ are supplementary	
2	$\angle Q$ and $\angle R$ are supplementary	
3	$m\angle Q + m\angle S = 180°$	
4	$m\angle Q + m\angle R = 180°$	
5	$m\angle Q + m\angle S = m\angle Q + m\angle R$	
6	$m\angle R = m\angle S$	
7	$\angle R \cong \angle S$	

12. $\angle V$ and $\angle X$ are supplementary and $\angle V$ and $\angle W$ are supplementary. Complete the proof that $\angle W \cong \angle X$.

	Statement	Reason
1	$\angle V$ and $\angle X$ are supplementary	
2	$\angle V$ and $\angle W$ are supplementary	
3	$m\angle V + m\angle X = 180°$	
4	$m\angle V + m\angle W = 180°$	
5	$m\angle V + m\angle X = m\angle V + m\angle W$	
6		
7		