

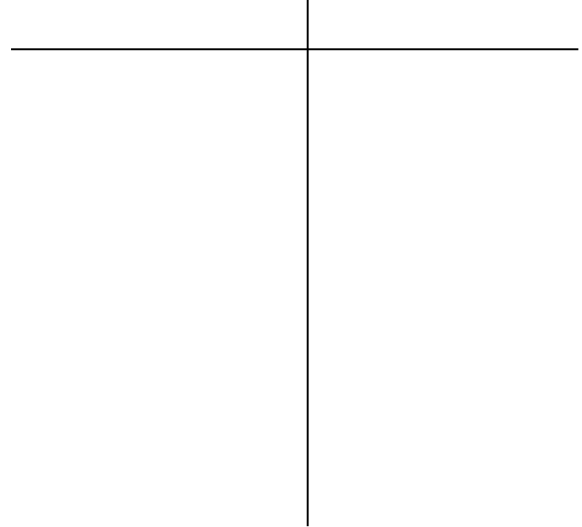
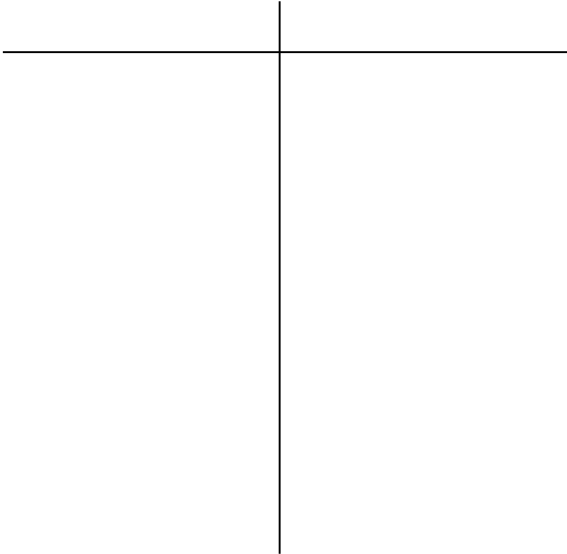
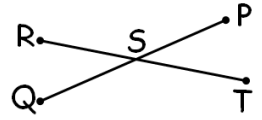
Geometric Proofs

Geometric Proofs:

- 1.) Given: $FL = AT$
 Prove: $FA = LT$

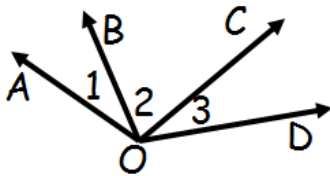


- 2.) Given: $RS = PS$ and $ST = SQ$
 Prove: $RT = PQ$

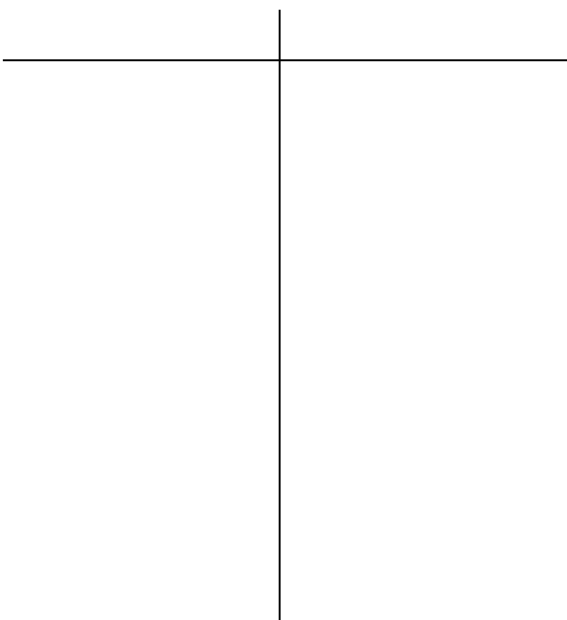
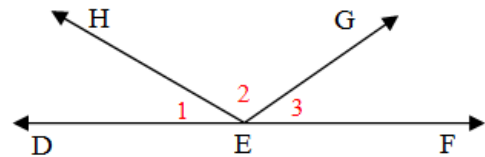


** It is often very useful to first mark the given figure with congruency tallies**

- 3.) Given: $m\angle AOC = m\angle BOD$
 Prove: $m\angle 1 = m\angle 3$



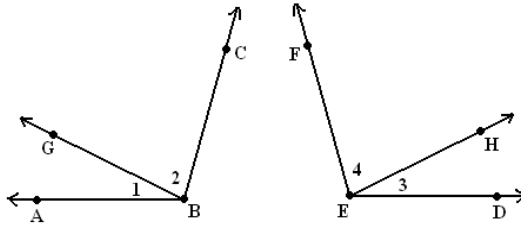
- 4.) Given: $m\angle 1 = m\angle 3$
 Prove: $m\angle DEG = m\angle HEF$



Statements	Reasons
1. _____	1. Given
2. $m\angle 2 = m\angle 2$	2. _____
3. $m\angle 1 + m\angle 2 =$ $m\angle 3 + m\angle 2$	3. _____
4. $m\angle DEG =$ $m\angle 1 + m\angle 2;$ $m\angle HEF =$ $m\angle 3 + m\angle 2$	4. _____
5. $m\angle DEG = m\angle HEF$	5. _____

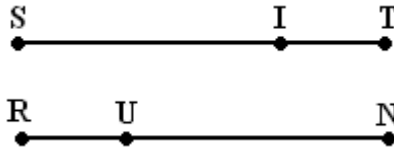
Practice Problems

Given: $m\angle 1 = m\angle 3$ and $m\angle 2 = m\angle 4$
 Prove: $m\angle ABC = m\angle DEF$



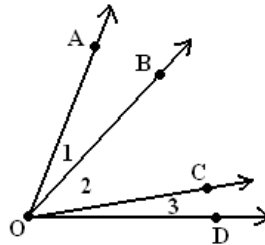
Statements	Reasons
1)	1)
2) $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$	2)
3) $m\angle 1 + m\angle 2 = m\angle ABC$	3)
4) $m\angle 3 + m\angle 4 = m\angle DEF$	4)
5)	5)

Given: $ST = RN$ and $IT = RU$
 Prove: $SI = UN$



Statements	Reasons
1)	1)
2) $SI + IT = \underline{\hspace{2cm}}$	2)
3) $RU + UN = \underline{\hspace{2cm}}$	3)
4) $SI + IT = RU + UN$	4)
5) $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$	5)

Given: $\angle AOD$ as shown
 Prove: $m\angle AOD = m\angle 1 + m\angle 2 + m\angle 3$



Statements	Reasons
1)	1)
2) $m\angle AOD = m\angle AOC + m\angle 3$	2)
3) $m\angle AOC = m\angle 1 + m\angle 2$	3)
4)	4)

What postulate, definition, or theorem justifies the statement about the diagram?

1. $m\angle AEB + m\angle BEC = m\angle AEC$. _____

2. $AE + EF = AF$. _____

3. $m\angle AEB + m\angle BEF = 180$. _____

4. If E is the midpoint of AF, then $AE \cong EF$. _____

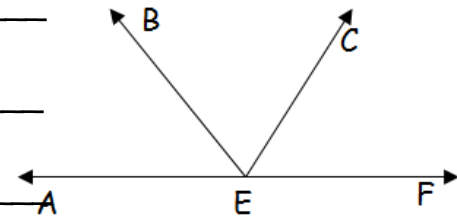
5. If E is the midpoint of AF, then $AE = \frac{1}{2}AF$. _____

6. If E is the midpoint of AF, then EC bisects AF. _____

7. If EB bisects AF, then E is the midpoint of AF. _____

8. If EB is the bisector of $\angle AEC$, then $m\angle AEB = \frac{1}{2}m\angle AEC$. _____

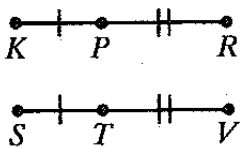
9. If $\angle BEC \cong \angle CEF$, then EC is the bisector of $\angle BEF$. _____



Fill in the Proofs!

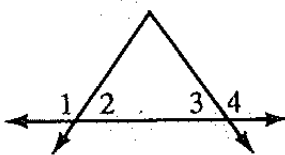
Complete the following proofs by supplying the missing statements and reasons.

6. Given: $KP = ST$;
 $PR = TV$
 Prove: $KR = SV$



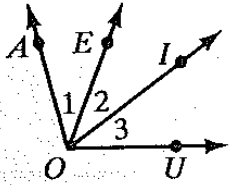
Statements	Reasons
1. _____	1. Given
2. $KP + PR = ST + TV$	2. _____
3. $KP + PR = KR; ST + TV = SV$	3. _____
4. _____	4. Substitution Prop.

7. Given: $m\angle 1 = m\angle 4$
 Prove: $m\angle 2 = m\angle 3$



Statements	Reasons
1. $m\angle 1 + m\angle 2 = 180$; $m\angle 3 + m\angle 4 = 180$	1. Angle Addition Post.
2. $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$	2. _____
3. _____	3. Given
4. $m\angle 2 = m\angle 3$	4. _____

8. Given: $m\angle AOI = m\angle EOU$
 Prove: $m\angle 1 = m\angle 3$



Statements	Reasons
1. _____	1. Given
2. $m\angle 2 = m\angle 2$	2. _____
3. $m\angle 1 + m\angle 2 = m\angle AOI$; $m\angle 2 + m\angle 3 = m\angle EOU$	3. _____
4. $m\angle 1 + m\angle 2 = m\angle 2 + m\angle 3$	4. _____
5. _____	5. _____

Supply the missing reasons in the proof.

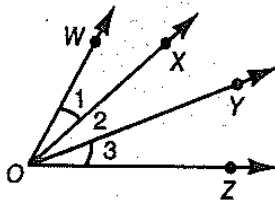
14. Given: $MI = LD$
 Prove: $ML = ID$



Proof:

Statements	Reasons
1. $MI = LD$	1. _____
2. $IL = IL$	2. _____
3. $MI + IL = LD + IL$	3. _____
4. $MI + IL = ML$; $LD + IL = ID$	4. _____
5. $ML = ID$	5. _____

- Given: $m\angle 1 = m\angle 3$
 Prove: $m\angle WOY = m\angle ZOY$



Proof:

Statements	Reasons
1. $m\angle 1 = m\angle 3$	1. _____
2. $m\angle 2 = m\angle 2$	2. _____
3. $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 2$	3. _____
4. _____	4. _____
5. $m\angle WOY = m\angle ZOY$	5. _____