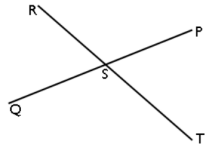
Geometric Proofs
Day 2

Section 2.6

Given: $\overline{RT}$ and $\overline{PQ}$ intersecting at S so that $RS = PS$ and $ST = SQ$

Prove: $RT = PQ$

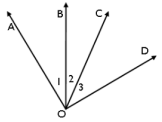


Proof:

	STATEMENTS	REASONS
1)	RS=PS and ST = SQ	1)
2)	RS + ST = PS + SQ	2)
3)	RS + ST = RT QS +SP = QP	3)
4)	RT = PQ	4)

Given: $m(\angle AOC) = m(\angle BOD)$

Prove: $m(\angle 1) = m(\angle 3)$



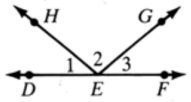
Proof:

STATEMENT	REASONS
1) $m\angle AOC = m\angle BOD$	1)
2) $m\angle AOC = m\angle 1 + m\angle 2$ $m\angle BOD = m\angle 2 + m\angle 3$	2)
3)	3) Substitution
4) $m\angle 2 = m\angle 2$	4)
5) $m\angle 1 = m\angle 3$	5)

Example Complete the proof by supplying the missing statements and reasons.

Given: $m\angle 1 = m\angle 3$

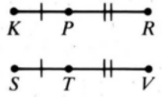
Prove: $m\angle DEG = m\angle HEF$



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.

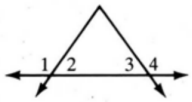
Complete the following proofs by supplying the missing statements and reasons.

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



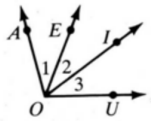
Statements	Reasons
1)	1. Given
2) $KP + PR = ST + TV$	2.
3) $KP + PR = KR$; $ST + TV = SV$	3.
4)	4. Substitution Prop.

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.