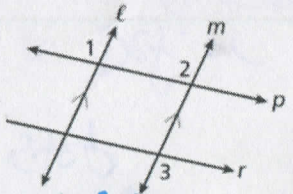
Lesson Title 3.3 Parallel & Perpendicular Lines DAY ONE Notes HGEO Date _____

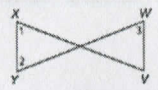
TASK 1:

Given: $p \parallel r$, $\angle 1 \cong \angle 3$
Prove: $\ell \parallel m$



Statements	Reasons
1. $p \parallel r$; $\angle 1 \cong \angle 3$	1. given
2. $\angle 2 \cong \angle 3$	2 If ⇔ R// ⇒ AEA R ≅.
3. $\angle 3 \cong \angle 2$	3. Symmetic POC
4. $\angle 1 \cong \angle 2$	4. Transitive POC
5. $\ell \parallel m$	5. If Corr. ∡'s R ≅ ⇒⇔ R //.

TASK 2:



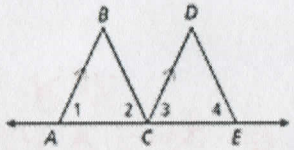
Given: $\angle 1 \cong \angle 2, \angle 3 \cong \angle 1$
Prove: $\overline{XY} \parallel \overline{WV}$

Statements	Reasons
1. $\angle 1 \cong \angle 2$; $\angle 3 \cong \angle 1$	1. given
2. $\angle 3 \cong \angle 2$	2. Transitive POC
3. $\overline{XY} \parallel \overline{WV}$	3. If AIA R ≅ ⇒⇔ R//.

TASK3:

Given: $\overline{AB} \parallel \overline{CD}, \angle 1 \cong \angle 2, \angle 3 \cong \angle 4$

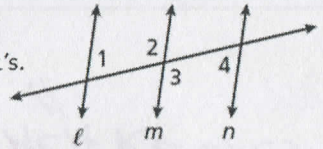
Prove: $\overline{BC} \parallel \overline{DE}$



Statements	Reasons
1. $\overline{AB} \parallel \overline{CD}$; $\angle 1 \cong \angle 2$; $\angle 3 \cong \angle 4$	1. given
2. ∡1 ≅ ∡3	2. If ⇔ R// ⇒ corr ∡'s R ≅.
3. ∡1 ≅ ∡4	3. Transitive POC
4. ∡2 ≅ ∡1	4. Symmetic POC
5. ∡2 ≅ ∡4	5. Transitive POC
6. $\overline{BC} \parallel \overline{DE}$	6. If Corr ∡'s R ≅ ⇒ ⇔ R//.

TASK4:

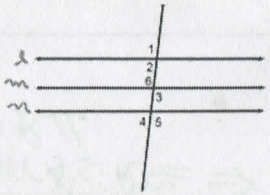
Given: $\angle 1 \cong \angle 4$, $\angle 3$ and $\angle 4$ are supplementary ∠'s.
Prove: $\ell \parallel m$



Statements	Reasons
1. $\angle 1 \cong \angle 4$; ∡3 ∡4 R supp ∡s	1. given
2. ∡2 ≅ ∡3	2. Def of vertical ∡'s
3. m∠3 + m∠4 = 180°	3. Def of supp ∡'s
4. m∠2 = m∠3	4. If ≅ ⇒ =
5. m∠2 + m∠4 = 180°	5. Substitution POE
6. m∠1 = m∠4	6. If ≅ ⇒ =
7. m∠2 + m∠4 = 180°	7. Substitution POE
8. $\ell \parallel m$	8. If SSIA R supp. ⇒ ⇔ R//.

TASK5:

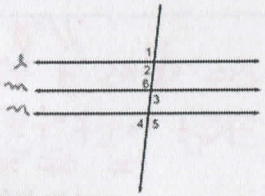
Given: m∠2 + m∠3 = 180°
Prove: $\ell \parallel m$



Statements	Reasons
1. m∠2 + m∠3 = 180	1. given
2. ∠3 ≅ ∠6	2. Def of vertical ∠'s
3. m∠3 = m∠6	3. If ≅ ⇒ =
4. m∠2 + m∠6 = 180°	4. Substitution POE
5. $\ell \parallel m$	5. If SSIA R supp ⇒ ⇐ R //

TASK6:

Given: m∠2 + m∠5 = 180°
Prove: $\ell \parallel m$



Statements	Reasons
1. m∠2 + m∠5 = 180°	1. given
2. m∠1 + m∠2 = 180	2. Def of Linear Pair
3. m∠2 + m∠5 = m∠1 + m∠2	3. Substitution POE
4. m∠5 = m∠1	4. Subtraction POE
5. ∠5 ≅ ∠1	5. If = ⇒ ≅.
6. $\ell \parallel m$	6. If AEA R ≅ ⇒ ⇔ R //

Notes to yourself about proofs:

- # both statements & reasons
- don't make the diagram w/o writing it on the proof
- leave no holes in your proof
- Each line has one step
- Write in if-then if not a Def. or POE/POC

What common mistakes did you make, and how did you fix it?

- switched order
- No substitution POC

Still need help with: