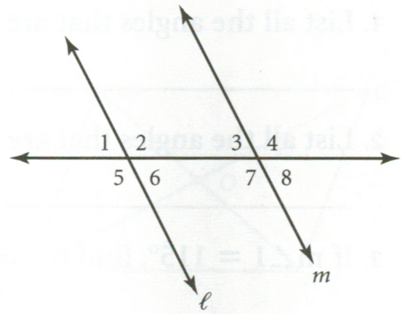
NAME KEY CLASS ______ DATE ______

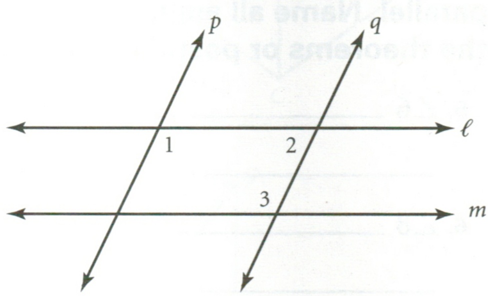
Practice
3.4 Proving That Lines Are Parallel

For Exercises 1–5, refer to the diagram below, and fill in the name of the appropriate theorem or postulate.



1. If $m\angle 5 = m\angle 4$, then $\ell \parallel m$ by the converse of the Alternate Exterior Angles Theorem.
2. If $m\angle 6 = m\angle 3$, then $\ell \parallel m$ by the converse of the Alternate Interior Angles Theorem.
3. If $m\angle 1 = m\angle 3$, then $\ell \parallel m$ by the converse of the Corresponding Angles Postulate.
4. If $m\angle 1 = m\angle 8$, then $\ell \parallel m$ by the converse of the Alternate Exterior Angles Theorem.
5. If $m\angle 6 + m\angle 7 = 180°$, then $\ell \parallel m$ by the converse of the Same-Side Interior Angles Theorem.

For Exercises 6–12, use the diagram at right to complete the two-column proof below.



Given: $m\angle 1 = m\angle 3$
$p \parallel q$

Prove: $\ell \parallel m$

Statements	Reasons
$p \parallel q$	6. Given
$\angle 1$ and $\angle 2$ are supplementary.	7. Transversal with ‖ lines means supplementary same-side interior angles
$m\angle 1 + m\angle 2 = 180°$	8. Definition of Supplementary Angles
$m\angle 1 = m\angle 3$	9. Given
$m\angle 3 + m\angle 2 = 180°$	10. Substitution (from steps 8 and 9)
$\angle 3$ and $\angle 2$ are supplementary.	11. Definition of Supplementary Angles
$\ell \parallel m$	12. Transversal with supplementary same-side interior angles means ‖ lines