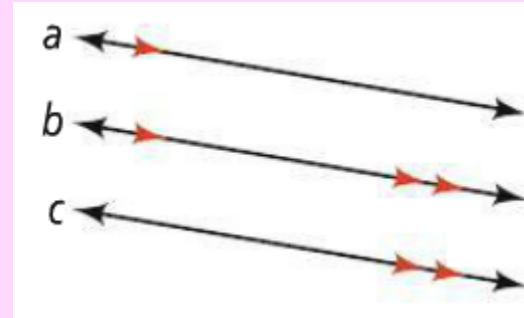


Section 3.4 - Parallel and Perpendicular Lines

Goals: Prove theorems about perpendicular and parallel lines

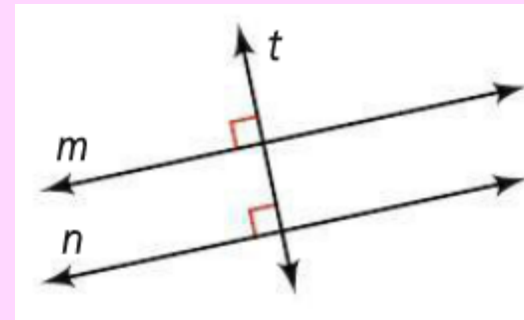
Theorem 3-8

If two lines are parallel to the same line, then they are parallel to each other.



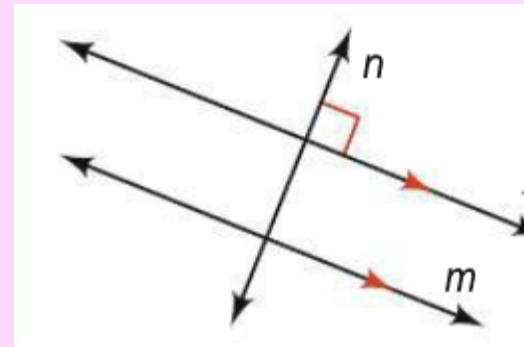
Theorem 3-9

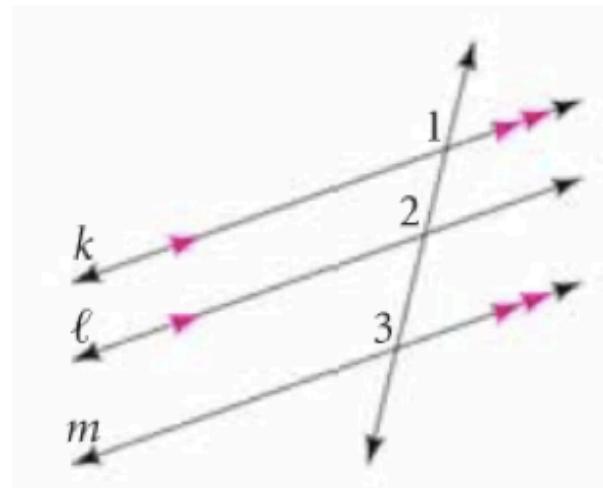
In a plane, if two lines are perpendicular to the same line, then they are parallel to each other.



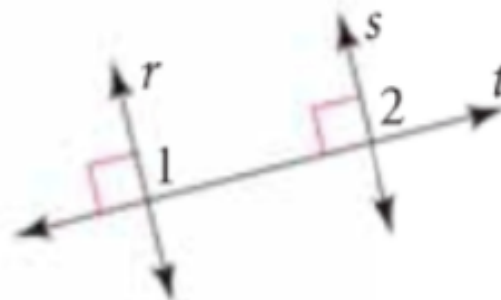
Theorem 3-10

In a plane, if a line is perpendicular to one of two parallel lines, then it is also perpendicular to the other.

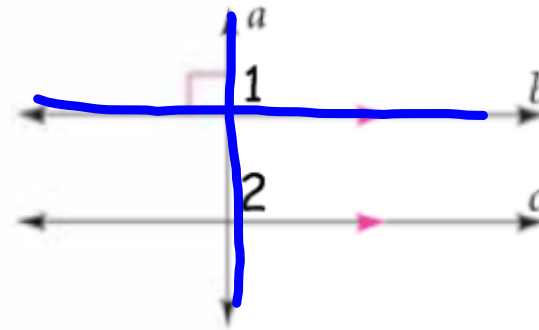


Prove Theorem 3.8**Given:** $\ell \parallel k$ and $m \parallel k$ **Prove:** $\ell \parallel m$ 

Statements	Justifications
1. $l \parallel k$ and $m \parallel k$	Given
2. $\angle 1 \cong \angle 2$	Corresponding Angles Theorem
3. $\angle 1 \cong \angle 3$	Corresponding Angles Theorem
4. $\angle 2 \cong \angle 3$	Transitive Property of Congruence
5. $l \parallel m$	Corresponding Angles Converse

Prove Theorem 3.9**Given:** $r \perp t, s \perp t$ **Prove:** $r \parallel s$ 

Statements	Justifications
1. $r \perp t$ and $s \perp t$	Given
2. $\angle 1$ and $\angle 2$ are right angles	Definition of Perpendicular
3. $\angle 1 \cong \angle 2$	Congruent Right Angles Theorem
4. $r \parallel s$	Corresponding Angles Converse

Prove Theorem 3.10**Given:** In a plane, $a \perp b$, and $b \parallel c$.**Prove:** $a \perp c$ 

Statements	Justifications
1. $a \perp b$ and $b \parallel c$	Given
2. $m\angle 1 = 90$	Definition of Perpendicular
3. $m\angle 1 = m\angle 2$	Corresponding Angles Theorem
4. $m\angle 2 = 90$	Substitution Property
5. $a \perp c$	Definition of Perpendicular

Assignment:

Finish Concept 7 Worksheet