Theorem: If two parallel lines are cut by a transversal, then the corresponding angles are congruent.

Given: $x \parallel y$ cut by transversal t **Diagram**:
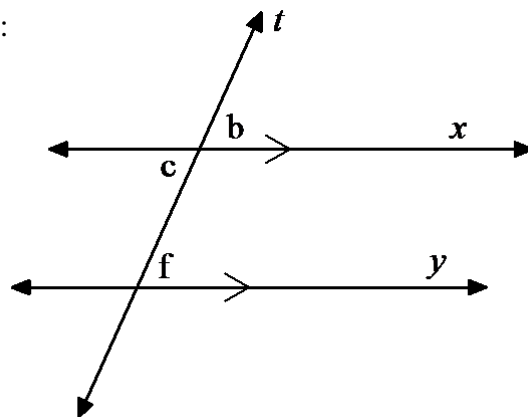
Prove: ∠b ≅ ∠f

Statements	Reasons
1. $x \parallel y$ cut by transversal t	1. Given
2. ∠b and ∠c are vertical angles	2. Definition of Vertical Angles
3. ∠b ≅ ∠c	3. Theorem: If two angles are vertical angles, then they are congruent.
4. ∠c and ∠f are alternate interior angles	4. Definition of Alternate Interior Angles
5. ∠c ≅ ∠f	5. Theorem: If two parallel lines are cut by a transversal, then the alternate interior angles formed are congruent.
6. ∠b ≅ ∠f	6. Transitive Axiom