

3.6 Using Perpendicular and Parallel Lines

Objective: Use properties of parallel and perpendicular lines.

Parallel Postulate: If there is a line and a point not on the line, then there is exactly one line through the point parallel to the given line.

Perpendicular Postulate: If there is a line and a point not on the line, then there is exactly one line through the point perpendicular to the given line.

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

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

Checkpoint on the top of page 146.

WAYS TO SHOW THAT TWO LINES ARE PARALLEL:

1. Converse of the Corresponding Angles Postulate
2. Converse of the Alternate Interior Angles Theorem
3. Converse of the Alternate Exterior Angles Theorem
4. Converse of the Same-Side Interior Angles Theorem
5. If two lines are parallel to the same line, then they are parallel to each other.
6. In a plane, if two lines are perpendicular to the same line, then they are parallel to each other.