

- G.2 The student will use the relationships between angles formed by two lines intersected by a transversal to
- prove two or more lines are parallel; and
  - solve problems, including practical problems, involving angles formed when parallel lines are intersected by a transversal.

Understanding the Standard	Essential Knowledge and Skills
<ul style="list-style-type: none"> <li>• Deductive or inductive reasoning is used in mathematical proofs. In this course, deductive reasoning and logic are used in direct proofs. Direct proofs are presented in different formats (typically two-column or paragraph) and employ definitions, postulates, theorems, and algebraic justifications including coordinate methods.</li> <li>• Parallel lines intersected by a transversal form angles with specific relationships.</li> <li>• Some angle relationships may be used when proving two lines intersected by a transversal are parallel.</li> <li>• If two parallel lines are intersected by a transversal, then:               <ul style="list-style-type: none"> <li>– corresponding angles are congruent;</li> <li>– alternate interior angles are congruent;</li> <li>– alternate exterior angles are congruent;</li> <li>– same-side (consecutive) interior angles are supplementary; and</li> <li>– same-side (consecutive) exterior angles are supplementary.</li> </ul> </li> <li>• Deductive proofs can be used to show that two or more lines are parallel.</li> <li>• The construction of the line parallel to a given line through a point not on the line can be justified using the angle relationships formed when two lines are intersected by a transversal.</li> </ul>	<p><b>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</b></p> <ul style="list-style-type: none"> <li>• Prove two or more lines are parallel given angle measurements expressed numerically or algebraically. (a)</li> <li>• Prove two lines are parallel using deductive proofs given relationships between and among angles. (a)</li> <li>• Solve problems by using the relationships between pairs of angles formed by the intersection of two parallel lines and a transversal including corresponding angles, alternate interior angles, alternate exterior angles, same-side (consecutive) interior angles, and same-side (consecutive) exterior angles. (b)</li> <li>• Solve problems, including practical problems, involving intersecting and parallel lines. (b)</li> </ul>