



## Topic A:

## Unknown Angles

## 7.G.B.5

<b>Focus Standard:</b>	7.G.B.5	Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
<b>Instructional Days:</b>	4	
<b>Lesson 1:</b>	Complementary and Supplementary Angles (P) <sup>1</sup>	
<b>Lessons 2–4:</b>	Solve for Unknown Angles using Equations (P, P, P)	

The topic of unknown angles was first introduced to students in Grade 4, where they determined unknown angle values by measuring with a protractor and by setting up and solving simple equations. Though the problems in Grade 7 are more sophisticated, the essential goal remains the same. The goal is to model the angle relationship with an equation and find the value that makes the equation true, which can be confirmed by measuring any diagram with a protractor, similar to Grade 4. There are more lines in any given diagram than in Grade 4, which means there are more angle relationships to assess in order to find the unknown angle, such as a case where vertical angles and angles on a line are in combination. In contrast to typical procedural instruction, students are encouraged to examine complex diagrams thoroughly to best understand them. In Lesson 1 of Topic A, students revisit key vocabulary and then tackle problems—both diagram-based and verbal—that focus on complementary and supplementary angles. Lessons 2–4 broaden in scope to include the angle facts of angles on a line and angles at a point and the problems become progressively more challenging. The goal is to present students with a variety of problems so they can practice analyzing the structure of the diagrams and translating their observations into an equation (MP.7).

<sup>1</sup> Lesson Structure Key: **P**-Problem Set Lesson, **M**-Modeling Cycle Lesson, **E**-Exploration Lesson, **S**-Socratic Lesson