Optional Topic E

Pythagorean Theorem

8.G.B.7, 8.EE.C.8

**Focus Standards:**

8.G.B.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

8.EE.C.8 Analyze and solve pairs of simultaneous linear equations.

  a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.

  b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.

  c. Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.

**Instructional Days:** 1

**Lesson 31:** System of Equations Leading to Pythagorean Triples (S)\(^1\)

Lesson 31 shows students how to apply what they learned about systems of linear equations to find a Pythagorean triple (8.G.B.7, 8.EE.C.8b). The Babylonian method of generating Pythagorean triples, described in Lesson 31, uses a system of linear equations.

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\(^1\)Lesson Structure Key: P-Problem Set Lesson, M-Modeling Cycle Lesson, E-Exploration Lesson, S-Socratic Lesson