



Family Resources for Math 8 Unit 8: Pythagorean Theorem and Irrational Numbers

Math for Fun

Math is more than a collection of formulas or procedures—it's an opportunity to think, explore, and even have fun. When approached with curiosity, mathematics becomes a space for the discovery of patterns and meaningful connections. Games and puzzles are especially powerful tools because they encourage students to think strategically, make decisions, and learn from trial and error. As players test strategies, recognize patterns, and adapt their thinking, they naturally strengthen important mathematical skills such as reasoning, problem-solving, and perseverance. For middle school students, activities like logic puzzles (such as Sudoku or KenKen), number games (like 24 or Math Bingo), and strategy games (including chess, checkers, or digital math games) can make learning both engaging and effective. By incorporating these playful challenges, math shifts from a routine task into an experience that builds confidence, sharpens thinking, and fosters a lasting appreciation for how math works in the world.

Here are some games and puzzles that involve mathematical thinking:

- Online 24 Game - <https://online24game.com/>
- Nerdle - <https://nerdlegame.com/>
- Solve Me Puzzles - <https://solveme.edc.org/>

For additional information and resources to support at home, please visit the [Office of Mathematics website](#).



Big Ideas in Unit 8

Within this unit, students will learn these big ideas:

- Side Lengths and Areas of Squares
- The Pythagorean Theorem
- Side Lengths and Volume of Cubes
- Decimal Representation of Rational and Irrational Numbers

For more details about this unit, see [Unit 8 Family Resources](#).

Lesson Specific Resources

Use the links below to learn about the learning from each lesson.

Lesson Link
8.1 The Areas of Squares
8.2 Side Lengths and Areas
8.3 Square Roots
8.4 Rational and Irrational Numbers
8.5 Square Roots on the Number Line
8.6 Reasoning about Square Roots
8.7 Finding Side Lengths of Triangles
8.8 A Proof of the Pythagorean Theorem Course Icon
8.9 Finding Unknown Side Lengths
8.10 The Converse
8.11 Applications of the Pythagorean Theorem
8.12 More Applications of the Pythagorean Theorem
8.13 Finding Distances in the Coordinate Plane
8.14 Edge Lengths and Volumes
8.15 Cube Roots
8.16 Decimal Representations of Rational Numbers
8.17 Infinite Decimal Expansions
8.18 When Is the Same Size Not the Same Size?