Eureka Math Parent Guide

A GUIDE TO SUPPORT PARENTS AS THEY WORK WITH THEIR STUDENTS IN MATH.

GRADE 4
MODULE 4

GRADE FOCUS

Fourth grade mathematics is about (1) developing understanding and fluency with multi-digit multiplication and division; (2) developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; and (3) understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

- Module 1: Place Value, Rounding, and Algorithms for Addition and Subtraction
- Module 2: Unit Conversions and Problem Solving with Metric Measurement
- Module 3: Multi-Digit Multiplication and Division
- » **Module 4: Angle Measure and Plane Figures**
- Module 5: Fraction Equivalence, Ordering, and Operations
- Module 6: Decimal Fractions
- Module 7: Exploring Multiplication

LET'S CHECK IT OUT!

MODULE 4 FOCUS

This 20-day module introduces points, lines, line segments, rays, and angles, as well as the relationships between them. Students will construct, recognize, and define these geometric objects before using their new knowledge and understanding to classify figures and solve problems. Students will construct and measure angles, as well as create equations to find an unknown angle.

MORE SPECIFICALLY, CHILDREN WILL LEARN HOW TO:

- Recognize angles as geometric shapes that are formed whenever two rays share a common endpoint, and understand concepts of angle measurement.
- Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
- Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts.
- Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

- Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.
- Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

TOPIC OVERVIEW

Topics are the lessons within a module that help children master the skills above. Here are the lessons that will guide your child through Module 4:

- Topic A: Lines and Angles
- Topic B: Angle Measurement
- Topic C: Problem Solving with the Addition of Angle Measures
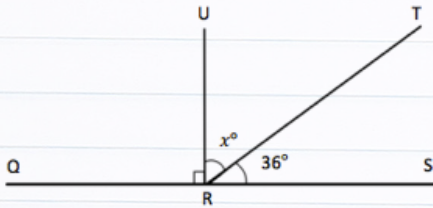- Topic D: Two-Dimensional Figures and Symmetry

WORDS TO KNOW

- **Angle**: union of two different rays sharing a common vertex
- **Acute Angle**: angle with a measure of less than 90 degrees
- **Line of symmetry**: line through a figure such that when the figure is folded along the line two halves are created that match up exactly
- **Obtuse angle**: angle with a measure greater than 90 degrees but less than 180 degrees
- **Parallel**: two lines in a plane that do not intersect
- **Perpendicular**: Two lines are perpendicular if they intersect, and any of the angles formed between the lines is a 90° angle
- **Right angle**: angle formed by perpendicular lines, measuring 90 degrees
- **Straight angle**: angle that measures 180 degrees
- **Triangle**: A triangle consists of three non-collinear points and the three line segments between them.
- **Vertex**: a point, often used to refer to the point where two lines meet, such as in an angle or the corner of a triangle

SAMPLE PROBLEMS

SAMPLE 1

Given a geometrical drawing like the one below, students will learn to use what they know to solve for an unknown angle measure.
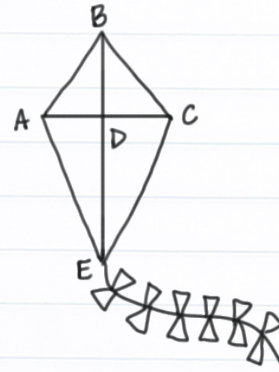
Solve for ∠ TRU.

∠ QRS is a straight angle.

∠ URS is 90 degrees. ∠ TRS is 36 degrees.
Therefore ∠ TRU is 90−36=54 degrees.

Students will be asked to identify points, line segments, lines, rays, and angles.

SAMPLE 2

In the world of language learning, "total physical response" refers to the coordination of language and physical movement. In this module, there are many new geometry terms and ideas that students must remember. Using their bodies in connection with new vocabulary helps students to cement these new words and their meanings in lasting ways. Throughout the module, students engage in fluency activities called "Physiometry" (a single-word combination of "physical" and "geometry") in which they use body movements and positioning to indicate terms such as point, line segment, ray, acute, obtuse, and right angles, as well as many others.

Some sample Total Physical Response questions from this module:

What teacher says:	What students do:
Model a point	Clench one hand in a fist.
Model a ray	Extend arms straight so that they are parallel with the floor. Clench one hand in a fist and point the fingers of the other hand towards the wall.
Model a right angle	Stretch one arm up, directly at the ceiling. Stretch another arm directly towards a wall, parallel to the floor.
Make an angle that measures approximately 60°	Open arms apart to approximately 60°.

HOW YOU CAN HELP AT HOME

- Review vocabulary! This module introduces many new terms and ideas. Use your student's homework to find key terms to review.
- Practice adding to make 90, 180, 270 and 360, as well as subtracting from those numbers. This will be useful when students are solving problems like the missing angle one above.