



The Quantile Framework for Mathematics provides a common, developmental scale for measuring student mathematics achievement, the difficulty of mathematical skills and concepts, and the materials for teaching mathematics. By placing the curriculum, teaching materials and students on the same scale, Quantile measures enable educators to describe which mathematical skills and concepts a student is ready to learn and those that will require additional instruction so that students can be matched with resources that meet their learning needs. Parents also can use Quantile measures to support students' mathematical development by connecting them with targeted mathematics activities at home.



## A Parent's Guide to The Quantile Framework<sup>®</sup> for Mathematics



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# Help your child explore and understand the mathematics in everyday life!

Children who take a mathematics assessment that has been linked with the Quantile Framework will receive a Quantile® measure in addition to their standard mathematics scale score. A Quantile measure indicates a child's mathematical achievement level. It describes which mathematical skills and concepts the child has learned, new concepts the child is ready to learn with some instruction, and those that will require learning prerequisite skills first. Mathematics textbooks and other instructional resources also receive Quantile measures, enabling parents to connect their children with appropriate materials that can support their learning needs and help them to better appreciate the mathematics around them.

## What should you know about Quantile measures?

- Quantile measures provide valuable information about your child's mathematical achievement and the difficulty of a mathematical skill or concept (called a "QTaxon").
- Each QTaxon has its own Quantile measure. The difference between the Quantile measure of the QTaxon and your child's Quantile measure gauges how difficult or how simple the skill or concept will be for your child to learn.
- Your child's Quantile measure indicates what skills or concepts he or she most likely has learned (depending, in part, on your school's mathematics curriculum).
- Quantile measures range from Emerging Mathematician (0Q and below) to above 1400Q and span the skills and concepts taught in kindergarten through Algebra II, Geometry, Trigonometry and Precalculus.
- Your child should practice mathematics within a Quantile range of 50Q above and 50Q below his or her Quantile measure. You can ask your child's teacher to provide a list of appropriate learning targets or search the Math Skills Database or "Math at Home" at [www.Quantiles.com](http://www.Quantiles.com).
- When a new topic proves challenging for your child, you can use the resources on the Quantile website to help (e.g., review the prerequisite skills or concepts to ensure that gaps or misconceptions do not interfere with the new topic).
- Quantile measures do not translate specifically to grade levels. Within a class, there will be a range of students' Quantile measures (please see "The Need for Differentiating Mathematics Instruction" position paper on the Quantile website).
- Quantile measures provide an easy way for you to set measurable goals and track your child's growth in mathematics across grade levels.
- The Quantile Framework is linked with states' curricular frameworks to help your child learn the mathematical skills and concepts required to pass year-end tests.

For more information on how Quantile measures can help to improve your child's mathematical achievement, visit [www.Quantiles.com](http://www.Quantiles.com).



# The Quantile Framework at Home

## Quantile Resources for Building Mathematical Achievement

### "Math at Home"

The free "Math at Home" search utility provides family-friendly activities that can support your child's mathematical development. Simply select his or her grade and Quantile measure and "Math at Home" will generate a list of activities and resources to help



your child practice mathematical skills and concepts at the right grade and achievement levels. If you don't already know your child's Quantile measure, the utility will estimate a starting Quantile measure based on his or her overall comfort with grade-level mathematics. You can access "Math at Home" directly at [www.quantiles.com/mathathome](http://www.quantiles.com/mathathome).

### Quantile Map

The Quantile map reflects the developmental nature of mathematics—your child's readiness to learn a specific skill or concept depends on having learned other skills or concepts first. By matching your child's Quantile measure to the Quantile measure of a mathematical concept, you can see if he or she is ready to learn that concept or may need to learn prerequisite skills first. You can download the Quantile map at [www.Quantiles.com](http://www.Quantiles.com).

**840Q** Use models to find volumes for prisms and cylinders as the product of the area of the base (B) and the height. Calculate the volume of prisms.

**920Q** Use proportions to express relationships between corresponding parts of similar figures.

**1040Q** Use nets or formulas to find the surface area of prisms and cylinders.

**1140Q** Find the slope of a line given the graph of the line, an equation of the line, or two points on the line.

**1230Q** Find the ratio of perimeters, areas, and volumes of similar geometric figures using formulas to solve problems.

**1360Q** Determine the area and volume of figures using right triangle relationships, including trigonometric relationships.

**830Q** Calculate unit rates to make comparisons.

**900Q** Determine the absolute value of a number.

**1000Q** Calculate using numbers expressed in scientific notation.

**1130Q** Factor polynomials.

**1210Q** Use rational exponents to simplify expressions.

**1310Q** Find sums, differences, products, and quotients of rational algebraic expressions.

**EM\*** Emergent Mathematician

**100Q** 100Q

**200Q** 200Q

**300Q** 300Q

**400Q** 400Q

**500Q** 500Q

**600Q** 600Q

**700Q** 700Q

**800Q** 800Q

**900Q** 900Q

**1000Q** 1000Q

**1100Q** 1100Q

**1200Q** 1200Q

**1300Q** 1300Q

**1400Q** 1400Q

**GEOMETRY**

**MEASUREMENT**

**OPERATIONS**

**NUMBERS AND OPERATIONS**

**ALGEBRA AND FUNCTIONS**

**DATA ANALYSIS AND PROBABILITY**

**THE QUANTILE FRAMEWORK® FOR MATHEMATICS**

**QUANTILE**

The Quantile Framework® for Mathematics was developed by the Quantile Framework for Mathematics team at MetaMetrics, Inc. It is a proprietary tool used to measure a student's mathematical ability and the difficulty of mathematical tasks. It is based on a model of mathematical development that is grounded in research and theory. The Quantile Framework for Mathematics is a proprietary tool used to measure a student's mathematical ability and the difficulty of mathematical tasks. It is based on a model of mathematical development that is grounded in research and theory. The Quantile Framework for Mathematics is a proprietary tool used to measure a student's mathematical ability and the difficulty of mathematical tasks. It is based on a model of mathematical development that is grounded in research and theory.