Looking for Pythagoras Glossary

Hypotenuse The side of a right triangle that is opposite the right angle. The hypotenuse is the longest side of a right triangle

Irrational Number – A number that cannot be written as a fraction with a numerator and a denominator that are integers.

Pythagorean Theorem – The theorem states that if a and b are the lengths of the legs of a right triangle and c is the length of the hypotenuse, then $a^2 + b^2 = c^2$

Rational Number– A number that can be written as a fraction with a numerator and a denominator that are integers, for example 1/2.

Repeating Decimal– A decimal with a pattern of digits that repeats forever, such as 0.333333…. Repeating decimals are rational numbers.

Square Root – If $A = s^2$, then s is the square root of A. The positive square root of a number is the side length of a square that has that number as its area.
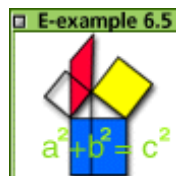
Terminating Decimal– A decimal that ends, or terminates, such as 0.5 or 0.125. Terminating decimals are rational numbers

Pythagorean Theorem

E-example 6.5

$a^2 + b^2 = c^2$

Everett Public Schools

Connected Mathematics Project

Everett Public Schools Mathematics Program

Looking for Pythagoras

The Pythagorean Theorem

Unit Goals:

- Calculate the distance between two points in the plane
- Understanding square roots as lengths as sides of squares
- Understand the Pythagorean Theorem
- Use the Pythagorean Theorem to solve problems

Proposed Time Frame: Approximately 6 weeks

Mathematics in Looking for Pythagoras

investigation 1 Locating Points
* To review the use of coordinates for specifying locations
* To use coordinates to specify direction and distance
* To connect properties of geometric shapes, such as parallel sides, to coordinate representations

Investigation 2 Finding Areas and Lengths
* To find areas of polygons drawn on a dot grid using various strategies
* To find the length of a line segment drawn on a grid by thinking of it as the side of a square
* To begin to develop an understanding of the concept of square root

Investigation 3 The Pythagorean Theorem
* To deduce the Pythagorean Theorem through exploration
* To use the Pythagorean Theorem to find areas of squares drawn on a dot grid
* To use the Pythagorean Theorem to find the distance between two points on a grid
* To determine whether a triangle is a right triangle
* To relate areas of squares to the lengths of the sides

Investigation 4 Using the Pythagorean Theorem
* **To apply the Pythagorean Theorem in several problem situations**
* To investigate the special properties of a 30-60-90 triangle and an isosceles right triangle
* To use properties of special right triangles to solve problems

Investigation 5 Irrational Numbers
* To connect decimal and fractional representations of rational numbers
* To estimate lengths of hypotenuse of right triangles
* To explore patterns in terminating and repeating decimals

Investigation 6 Rational and Irrational Slopes
* **To review the concept of slope of a line**
* To connect the concept of slope to the idea of irrational numbers
* To use slopes to test whether lines are parallel or perpendicular

Tips for Helping at Home

Good questions and good listening will help children make sense of mathematics and build self-confidence. A good question opens up a problem and supports different ways of thinking about it. Here are some questions you might try, notice that none of them can be answered with a simple "yes" or "no".

Getting Started
* What do you need to find out?
* What do you need to know?
* What terms do you understand or not understand?

While Working
* How can you organize the information?
* Do you see any patterns or relationships that will help solve this?
* What would happen if…?

Reflecting about the Solution
* How do you know your answer is reasonable?
* Has the question been answered?
* Can you explain it another way?

At Home:
1. Talk with your child about what's going on in mathematics class.
2. Look for ways to link mathematical learning to daily activities. Encourage your child to figure out the amounts for halving a recipe, estimating gas mileage, or figuring a restaurant tip.
3. Encourage your child to schedule a regular time for homework and provide a comfortable place for their study, free from distractions.
4. Monitor your child's homework on a regular basis by looking at one problem or asking your child to briefly describe the focus of the homework. When your child asks for help, work with them instead of doing the problem for them.

At School
1. Attend Open House, Back to School Night, and after school events.
2. Join the parent-teacher organization

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