



Standard #: MAFS.8.EE.1.2

This document was generated on CPALMS - www.cpalms.org

Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.

Subject Area: Mathematics	Grade: 8
Domain-Subdomain: Expressions & Equations	Cluster: Level 1: Recall
Cluster: Work with radicals and integer exponents. (Major Cluster) - Clusters should not be sorted from Major to Supporting and then taught in that order. To do so would strip the coherence of the mathematical ideas and miss the opportunity to enhance the major work of the grade with the supporting clusters.	Date Adopted or Revised: 02/14
Content Complexity Rating: Level 1: Recall - More Information	Date of Last Rating: 02/14
Status: State Board Approved	Assessed: Yes

TEST ITEM SPECIFICATIONS

Item Type(s): This benchmark may be assessed using: [EE](#) item(s)

N/A

Assessment Limits :

s Square roots and cube roots may be used to represent solutions to equations. Radicands may not include variables.

Calculator :

Neutral

Context :

Allowable

SAMPLE TEST ITEMS (3)

Test Item #: [Sample Item 1](#)

Question:

What is the value of p in the equation shown?

$$p^3 = 0.064$$

Difficulty: N/A

Type: [EE: Equation Editor](#)

Test Item #: [Sample Item 2](#)

Question:

A cube with an edge of length s has a volume of 64 units.

What is the length of s ?

Difficulty: N/A

Type: [EE: Equation Editor](#)

Test Item #: [Sample Item 3](#)

Question:

A square is cut in half on the diagonal, creating two equal triangles. Each triangle has an area of 0.32 square units.

What is the side length, in units, of the original square?

Difficulty: N/A

Type: [EE: Equation Editor](#)

Related Courses

Course Number	Course Title
1205050:	M/J Grade 7 Mathematics Advanced (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1205070:	M/J Grade 8 Pre-Algebra (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1204000:	M/J Intensive Mathematics (MC) (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
7812030:	Access M/J Grade 8 Pre-Algebra (Specifically in versions: 2014 - 2015, 2015 - 2018, 2018 - 2019, 2019 and beyond (current))
7912115:	Fundamental Explorations in Mathematics 2 (Specifically in versions: 2013 - 2015, 2015 - 2017 (course terminated))

Related Access Points

Access Point

Access Points Number	Access Points Title
MAFS.8.EE.1.AP.2a:	Use appropriate tools to calculate square root and cube root.
MAFS.8.EE.1.AP.2b:	Find products when bases from -6 to 6 are squared and cubed, using a calculator.
MAFS.8.EE.1.AP.2c:	Identify perfect squares from 0 to 100 by modeling them on graph paper or building with tiles.
MAFS.8.EE.1.AP.2d:	Identify squares and cubes as perfect or non-perfect.
MAFS.8.EE.1.AP.2e:	Recognize that non-perfect squares/cubes are irrational.

Related Resources

Formative Assessment

Name	Description
Dimensions Needed:	Students are asked to solve problems involving square roots and cube roots.
Roots and Radicals:	Students are asked to solve simple quadratic and cubic equations and represent solutions using square root and cube root symbols.
The Root of the Problem:	Students are asked to evaluate perfect square roots and perfect cube roots.

Lesson Plan

Name	Description
Discovering Kepler's Law for the Periods of Planets:	Students listen to a video that describes Kepler's determination that planetary orbits are elliptical and then will use data for the solar distance and periods of several of the planets in the solar system, then investigate several hypotheses to determine which is supported by the data.
Generalizing Patterns: The Difference of Two Squares:	This lesson is designed to help teachers assess how well students can work with square numbers. Upon completion of the lesson, students should be able to describe and explain their findings and why results are possible or impossible. This lesson is a bridge towards proofs. The materials required for this lesson are worksheets, plain paper, large sheets of paper for making posters, and felt-tip pens. The entire lesson requires 110 minutes, broken down into a 20-minute pre-lesson, an 80-minute lesson (or two 40-minute lessons), and a 10-minute follow-up lesson.

Tutorial

Name	Description
Finding cube roots:	Learn how to find the cube root of -512 using prime factorization.
Finding the square root of a decimal:	Students will learn how to find the square root of a decimal number.
Introduction to cube roots:	Students will learn the meaning of cube roots and how to find them. Students will also learn how to find the cube root of a negative number.
Introduction to square roots:	Students will learn about the square root symbol (the principal root) and what it means to find a square root. Students will also learn how to solve simple square root equations.

Assessment

Name	Description
Sample 3 - Eighth Grade Math State Interim Assessment:	This is a State Interim Assessment for eighth grade.
Sample 4 - Eighth Grade Math State Interim Assessment:	This is a State Interim Assessment for eighth grade.

Student Resources

Name	Description
Finding cube roots:	Learn how to find the cube root of -512 using prime factorization.

Finding the square root of a decimal:	Students will learn how to find the square root of a decimal number.
Introduction to cube roots:	Students will learn the meaning of cube roots and how to find them. Students will also learn how to find the cube root of a negative number.
Introduction to square roots:	Students will learn about the square root symbol (the principal root) and what it means to find a square root. Students will also learn how to solve simple square root equations.