



Standard #: MAFS.912.A-CED.1.4

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Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law $V = IR$ to highlight resistance R.* ★

Subject Area: Mathematics	Grade: 912
Domain-Subdomain: Algebra: Creating Equations	Cluster: Level 1: Recall
Cluster: Create equations that describe numbers or relationships. (Algebra 1 - Major Cluster) (Algebra 2 - Supporting 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

Assessed with:
MAFS.912.A-CED.1.1

Related Courses

Course Number	Course Title
1200310:	Algebra 1 (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1200320:	Algebra 1 Honors (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1200330:	Algebra 2 (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1200340:	Algebra 2 Honors (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1200370:	Algebra 1-A (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1200380:	Algebra 1-B (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1200400:	Intensive Mathematics (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1206330:	Analytic Geometry (Specifically in versions: 2014 - 2015 (course terminated))
2003320:	Physical Science Honors (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
2003390:	Physics 1 Honors (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1200500:	Advanced Algebra with Financial Applications (Specifically in versions: 2014 - 2015 (course terminated))
1200410:	Mathematics for College Success (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1200700:	Mathematics for College Readiness (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
7912070:	Access Liberal Arts Mathematics (Specifically in versions: 2014 - 2015, 2015 - 2018, 2018 - 2019, 2019 and beyond (current))
7912080:	Access Algebra 1A (Specifically in versions: 2014 - 2015, 2015 - 2018, 2018 - 2019, 2019 and beyond (current))
7912090:	Access Algebra 1B (Specifically in versions: 2014 - 2015, 2015 - 2018, 2018 - 2019, 2019 and beyond (current))
2000500:	Bioscience 1 Honors (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
2000510:	Bioscience 2 Honors (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
2000520:	Bioscience 3 Honors (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1200315:	Algebra 1 for Credit Recovery (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1200335:	Algebra 2 for Credit Recovery (Specifically in versions: 2014 - 2015, 2015 - 2019 (course terminated))
1200375:	Algebra 1-A for Credit Recovery (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
1200385:	Algebra 1-B for Credit Recovery (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
7912100:	Fundamental Algebraic Skills (Specifically in versions: 2013 - 2015, 2015 - 2017 (course terminated))
1207300:	Liberal Arts Mathematics 1 (Specifically in versions: 2014 - 2015, 2015 and beyond (current))
7912075:	Access Algebra 1 (Specifically in versions: 2014 - 2015, 2015 - 2018, 2018 - 2019, 2019 and beyond (current))

Related Access Points

Access Point

Access Points Number	Access Points Title
MAFS.912.A-CED.1.AP.4a:	Solve multi-variable formulas or literal equations for a specific variable.

Related Resources

Lesson Plan

Name	Description
Amusement Park Physics:	Students will research various types of amusement park rides and use their findings to design a feasible ride of their own. They will summarize their findings and present their ride design to the class. Each student will then write a persuasive letter to a local amusement park describing the reasons their ride design is the best.
BIOSCOPEs Summer Institute 2013 - Mechanical Energy:	This lesson is designed to be part of a sequence of lessons. It follows resource 52648 "BIOSCOPEs Summer Institute 2013 - Forces" and precedes resource 52957 "BIOSCOPEs Summer Institute 2013 - Thermal Energy." This lesson uses a predict, observe, and explain approach along with inquiry based activities to enhance student understanding of the conservation of energy.
Don't Take it so Literal:	The purpose of this lesson is to have students practice manipulation of literal equations to solve for the variable of interest. A literal equation is an equation that has more than variable (letter).
Equations of Circles 1:	This lesson unit is intended to help you assess how well students are able to use the Pythagorean theorem to derive the equation of a circle and translate between the geometric features of circles and their equations.
Math in Mishaps:	Students will explore how percents, proportions, and solving for unknowns are used in important jobs. This interactive activity will open their minds and address the question, "When is this ever used in real life?"

Problem-Solving Task

Name	Description
Equations and Formulas:	In this task, students will use inverse operations to solve the equations for the unknown variable or for the designated variable if there is more than one.

Video/Audio/Animation

Name	Description
Example of Solving for a Variable - Khan Academy:	This video takes a look at rearranging a formula to highlight a quantity of interest.
Solving Literal Equations:	Literal equations are formulas for calculating the value of one unknown quantity from one or more known quantities. Variables in the formula are replaced by the actual or 'literal' values corresponding to a specific instance of the relationship.

Formative Assessment

Name	Description
Literal Equations:	Students are given three literal equations, each involving three variables and either multiplication or division, and are asked to solve each equation for a specific variable.
Rewriting Equations:	Students are given a literal equation involving four variables and are asked to solve for the variable in the quadratic term.
Solving Formulas for a Variable:	Students are given the slope formula and the slope-intercept equation and are asked to solve for specific variables.
Solving Literal Equations:	Students are given three literal equations, each involving three variables and either addition or subtraction, and are asked to solve each equation for a specific variable.
Surface Area of a Cube:	Students are asked to solve the formula for the surface area of a cube for e , the length of an edge of the cube.

Assessment

Name	Description
Sample 2 - High School Algebra 1 State Interim Assessment:	This is a State Interim Assessment for 9th-12th grades.
Sample 4 - High School Algebra 1 State Interim Assessment:	This is a State Interim Assessment for 9th-12th grades.

Unit/Lesson Sequence

Name	Description
	This sample Algebra 1 CMAP is a fully customizable resource and curriculum-planning tool that provides a framework for the Algebra 1 Course. The units and standards are customizable and the CMAP allows instructors to add lessons, worksheets, and other resources as needed. This CMAP also includes rows that automatically filter and display Math Formative Assessments System tasks, E-Learning Original Student Tutorials and Perspectives Videos that are aligned to the standards, available on CPALMS.

Learn more about the sample Algebra 1 CMAP, its features and customizability by watching the following video:

[Sample Algebra 1 Curriculum Plan Using CMAP:](#)

Using this CMAP

To view an introduction on the CMAP tool, please [click here](#).

To view the CMAP, click on the "Open Resource Page" button above; be sure you are logged in to your iCPALMS account.

To use this CMAP, click on the "Clone" button once the CMAP opens in the "Open Resource Page." Once the CMAP is cloned, you will be able to see it as a class inside your iCPALMS My Planner (CMAPs) app.

To access your My Planner App and the cloned CMAP, click on the iCPALMS tab in the top menu.

All CMAP tutorials can be found within the iCPALMS Planner App or at the following URL: http://www.cpalms.org/support/tutorials_and_informational_videos.aspx

Student Resources

Name	Description
Equations and Formulas:	In this task, students will use inverse operations to solve the equations for the unknown variable or for the designated variable if there is more than one.
Example of Solving for a Variable - Khan Academy:	This video takes a look at rearranging a formula to highlight a quantity of interest.
Solving Literal Equations:	Literal equations are formulas for calculating the value of one unknown quantity from one or more known quantities. Variables in the formula are replaced by the actual or 'literal' values corresponding to a specific instance of the relationship.

Parent Resources

Name	Description
Equations and Formulas:	In this task, students will use inverse operations to solve the equations for the unknown variable or for the designated variable if there is more than one.