

Board of Education Regular Meeting
Thursday, March 20, 2014 7:00 PM Eastern

New Fairfield Community Room
3 Brush Hill Road
New Fairfield, CT 06812

Member Aboe: Present
Mr. Scott Akam: Present
Mr. Steve Burfeind: Present
Mr. Ken Chapman: Present
Mr. Kevin Hearty: Present
Mr. Sean Loughran: Present
Linda Norris: Present
Susan Starr: Present
Dr. Amy Tozzo: Present
Dr. Jay Voss: Present

Present: 10.

I.	Call to Order
II.	Pledge of Allegiance
III.	Approval of the Minutes
III.A.	March 6, 2014 - Regular
III.B.	March 12, 2014 – Special
IV.	Approval of the Agenda
V.	Chairman's Report
VI.	Superintendent's Report RECOGNITION – March is “Connecticut Board of Education Member Appreciation” Month
VII.	Student Representatives' Report
VIII.	Committees
VIII.A.	Finance
VIII.B.	Curriculum
VIII.C.	Personnel
VIII.D.	Policy
VIII.E.	Operations
VIII.F.	Field Fees
VIII.G.	Liaison
VIII.G.1.	Board of Finance
VIII.G.2.	Magnet School
VIII.G.3.	Parks and Recreation Committee
VIII.G.4.	Permanent Building Committee
VIII.G.5.	Technology
VIII.G.6.	Safety
VIII.G.7.	Education Connection
IX.	Information Items
IX.A.	CCSS - A Closer Look (CCSS)
IX.B.	Assessment Results (Cycles of Improvement)

IX.B.1. ELL

X. Public Participation - The Board welcomes public participation. Pursuant to our Board Policy, public participation is limited to no more than three (3) minutes per speaker and a total of no more than fifteen (15) minutes. People who wish to speak longer are encouraged to attend . . .

XI. Action Items

XI.A. Personnel Report

XI.B. Ekahau Security Badge System

XI.C. 2013-2014 Flexibility Request for the Educator Evaluation and Support System

XI.D. Library Research Survey

XII. Other

XIII. Adjournment

Claim 1: Mathematics Concepts and Procedures

Gail Pagano
Connecticut State Department of Education



CSDE Assessment Literacy Workshops
November 13, 14, 18, 19, 2013

Adapted by Barbara Mechler
February 6, 2014



Claim 1: Concepts and Procedures

“Students can explain and apply mathematical concepts and interpret and carry out mathematical procedures with precision and fluency.”

Rationale for Claim 1

- This claim addresses procedural skills and the conceptual understanding on which developing skills depend. It is important to assess how aware students are of how concepts link together and why mathematical procedures work the way they do.
- Central to understanding this claim is making the connection to these elements of the mathematical practices as stated in the CCSSM.
 - **MP5. Use appropriate tools strategically.**
 - **MP6. Attend to precision.**
 - **MP7. Look for and make use of structure.**
 - **MP8. Look for and express regularity in repeated reasoning.**

MP5: Use appropriate tools strategically

Mathematically proficient students:

- Detect possible errors by strategically using estimation and other mathematical knowledge.
- Use technological tools to explore and deepen their understanding of concepts.

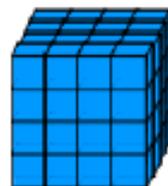
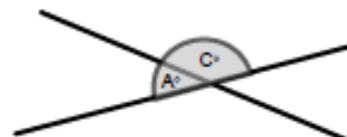
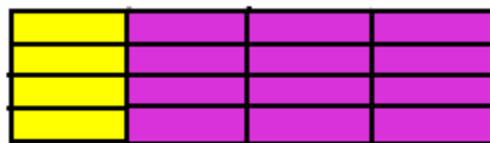
Use appropriate tools strategically.

Mathematical Practice 5

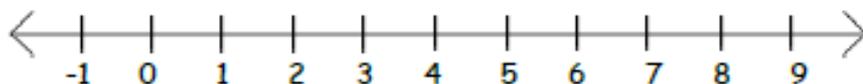


I can use certain tools to help me explore and deepen my math understanding.

- I know **HOW** and **WHEN** to use math tools.
- I can reason: *“Did the tool I used give me an answer that makes sense?”*



$$a \times b = b \times a$$



MP6: Attend to precision

Mathematically proficient students:

- State the meaning of the symbols they choose, including using the equal sign consistently and appropriately.
- Specify units of measure and label axes to clarify the correspondence with quantities in a problem.
- Calculate accurately and efficiently, and express numerical answers with a degree of precision appropriate for the problem context.
 - Older students should be able to examine claims and make explicit use of definitions.

Attend to precision.

Mathematical practice 6



I can be precise when solving problems and clear when communicating my ideas.

Mathematicians communicate with others using...

symbol: equal
↓ (the same as)
48 inches = 4 feet
↑ units of ↓
measure

- math vocabulary with clear definitions
- symbols that have meaning
- context labels
- units of measure
- calculations that are accurate and efficient

MP7: Look for and make use of structure.

Mathematically proficient students:

- look closely to discern a pattern or structure.
- Young students might notice that three and seven more is the same amount as seven and three more or they may sort a collection of shapes according to how many sides the shapes have.
- Later, students will see 7×8 equals the well-remembered $7 \times 5 + 7 \times 3$, in preparation for the distributive property.
- In the expression $x^2 + 9x + 14$, older students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems.
- step back for an overview and can shift perspective.
- see complicated things, such as some algebraic expressions, as single objects or composed of several objects.

Look for and make use of structure.

Mathematical Practice 7

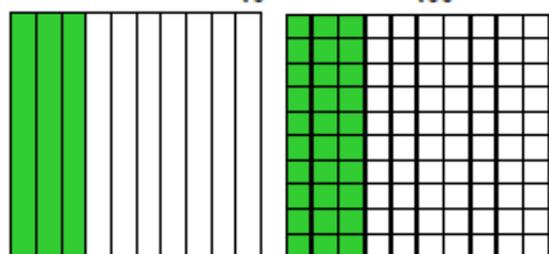


I can see and understand how numbers and spaces are organized and put together as parts and wholes.

Numbers

For Example:

I know that $\frac{3}{10}$ is equal to $\frac{30}{100}$.

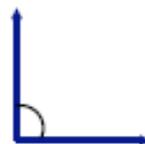


$$\text{So, } \frac{3}{10} + \frac{4}{100} = \frac{34}{100}$$

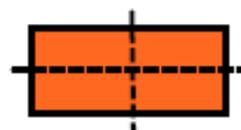
Equivalent Fractions

Spaces

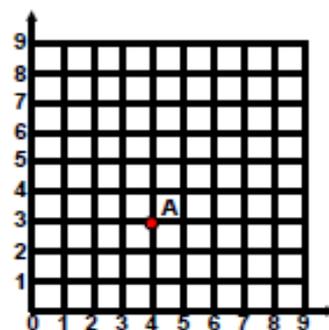
For Example:



Lines and Angles



Symmetry



Location

MP8: Look for and express regularity in repeated reasoning.

Mathematically proficient students:

- notice if calculations are repeated.
- look for both general methods and shortcuts.
- Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations and conclude they have a repeated decimal.
- Middle school students might abstract the equation $(y-2)/(x-1)=3$ by paying attention to the calculation of slope as they repeatedly check whether the points are on the line through (1, 2) with a slope 3.
- maintain oversight of the process of solving a problem, while attending to the details.
- continually evaluate the reasonableness of intermediate results.

Look for and express regularity in repeated reasoning.

Mathematical Practice 8



I can notice when calculations are repeated. Then, I can find more general methods and short cuts.

As I work...

...I think about what I'm trying to figure out while I pay attention to the details

...I evaluate if my results are reasonable.

There are many ways to decompose $\frac{3}{8}$ because it is composed of repeated $\frac{1}{8}$'s.

I CAN.....

....draw a whole and shade in three $\frac{1}{8}$'s parts.



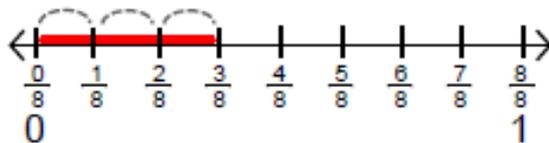
....add eighths.

$$\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$$

....count by eighths.
(one-eighth, two eighths, three eighths)

$$\frac{3}{8} = \frac{1}{8}, \frac{1}{8}, \frac{1}{8}$$

....jump three $\frac{1}{8}$ size jumps on a number line.



Standard for Mathematical Practice	Student Friendly Language
5. Use appropriate tools <u>strategically</u> . 	<ul style="list-style-type: none"> I can use math tools, pictures, drawings, and objects to solve the problem.
6. Attend to precision. 	<ul style="list-style-type: none"> I can check to see if my strategy and calculations are correct.
7. Look for and make use of structure 	<ul style="list-style-type: none"> I can use what I already know about math to solve the problem.
8. Look for and express regularity <u>in</u> repeated reasoning. 	<ul style="list-style-type: none"> I can use a strategy that I used to solve another math problem.

Grade 3 Targets for Claim 1

- A. Represent and solve problems involving multiplication and division
- B. Understand properties of multiplication and the relationship between multiplication and division
- C. Multiply and divide within 100
- D. Solve problems involving the four operations, and identify and explain patterns in arithmetic
- E. Use place value understanding and properties of operations to perform multi-digit arithmetic
- F. Develop understanding of fractions as numbers
- G. Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects
- H. Represent and interpret data
- I. Geometric measurement: understand concepts of area and relate area to multiplication and to addition
- J. Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures
- K. Reason with shapes and their attributes

Grade 6 Targets for Claim 1

- A. Understand ratio concepts and use ratio reasoning to solve problems
- B. Apply and extend previous understandings of multiplication and division to divide fractions by fractions
- C. Apply and extend previous understandings of numbers to the system of rational numbers
- D. Compute fluently with multi-digit numbers and find common factors and multiples
- E. Apply and extend previous understandings of arithmetic to algebraic expressions
- F. Reason about and solve one-variable equations and inequalities
- G. Represent and analyze quantitative relationships between dependent and independent variables
- H. Solve real-world and mathematical problems involving area, surface area, and volume
- I. Develop understanding of statistical variability
- J. Summarize and describe distributions

High School Targets for Claim 1

- A. Extend the properties of exponents to rational exponents
- B. Use properties of rational and irrational numbers
- C. Reason quantitatively and use units to solve problems
- D. Interpret the structure of expressions
- E. Write expressions in equivalent forms to solve problems
- F. Perform arithmetic operations on polynomials
- G. Create equations that describe numbers or relationships
- H. Understand solving equations as a process of reasoning and explain the reasoning
- I. Solve equations and inequalities in one variable
- J. Represent and solve equations and inequalities graphically
- K. Understand the concept of a function and use function notation
- L. Interpret functions that arise in applications in terms of a context
- M. Analyze functions using different representations
- N. Build a function that models a relationship between two quantities
- O. Define trigonometric ratios and solve problems involving right triangles
- P. Summarize, represent and interpret data on a single count or measurement variable

Essential Properties of Claim 1 Items

- Claim 1 items will be assessed on the computer-adaptive (CAT) portion of the summative assessment, using a combination of :
 - multiple choice, single correct response; multiple choice, multiple correct response; matching tables; equation/numeric; graphing; drag and drop; and fill-in table items that focus on explaining and applying mathematical concepts and carrying out mathematical procedures with precision and fluency.

Grade 4

Claim 1 – Target E

579

Drag one number into each box to complete the subtraction problem shown.

0
1
2
3
4
5
6
7
8
9

Delete

$$\begin{array}{r} 50\boxed{}6 \\ - \boxed{}48\boxed{} \\ \hline 16\boxed{}8 \end{array}$$

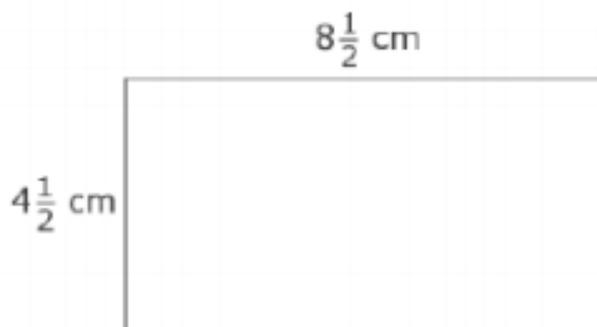
Grade 5

Claim 1 – Target F

622



Look at the rectangle.



What is the area of the rectangle in square centimeters?

←→↶↷✖

1	2	3	+	-	×	÷	
4	5	6	<	≤	=	≥	>
7	8	9	$\frac{\square}{\square}$	\square^{\square}	()		
0	.						

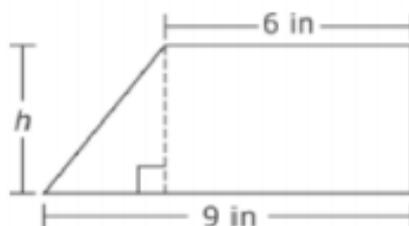
Grade 6

Claim 1 – Target H

631



The trapezoid shown is divided into a right triangle and a rectangle.



Use the Equation Tool to create an expression that could be used to determine the area of the trapezoid.

← → ↶ ↷ ✖

1	2	3	h
4	5	6	+ - × ÷
7	8	9	< ≤ = ≥ >
0	.	-	$\frac{\square}{\square}$ \square^\square ()

Grade 7

Claim 1 – Target A

734



Peter owns a lawn-mowing service. For every 3 hours of lawn-mowing, Peter charges \$28.80.

Create an equation that models the relationship between the total charge, y , and the number of hours, h , worked.

←	→	↶	↷	✖			
1	2	3	y	h			
4	5	6	+	-	x	÷	
7	8	9	<	≤	=	≥	>
0	.	-	$\frac{\square}{\square}$	\square^\square	()		π

Grade 8

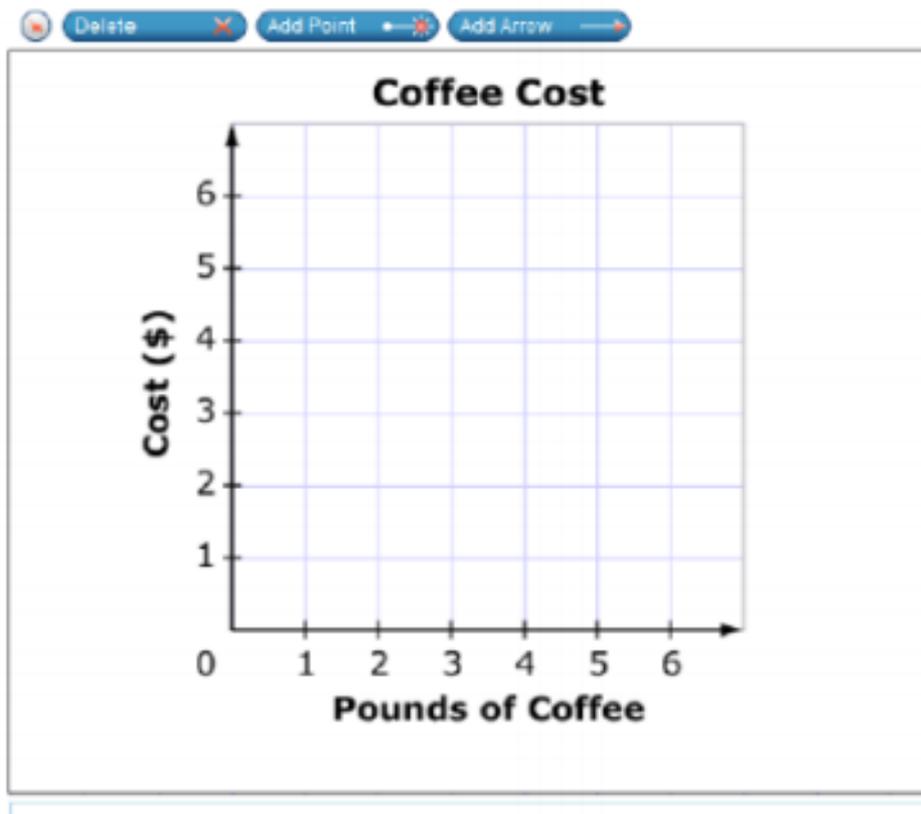
Claim 1 - Target C

766



Coffee costs \$2.00 per pound at a coffee shop.

Use the Add Arrow tool to draw a line that shows the proportional relationship between the number of pounds of coffee purchased and the total cost.



Grade 11

Claim 1 – Target E (Algebra)

666



Consider the function

$$f(x) = x^2 - 5x - 14.$$

Which of the numbers in the chart are zeros of the function? Select Yes or No in each row.

$$f(x) = x^2 - 5x - 14$$

Is this a zero of the function?	Yes	No
2		
7		
-2		
-7		

Reflect on Guiding Questions

- What do educators need to do to support student learning?
- What do educators need to do to ensure that students are prepared for the Smarter Balanced assessments?