Preparing for Smarter Balanced Math Assessments

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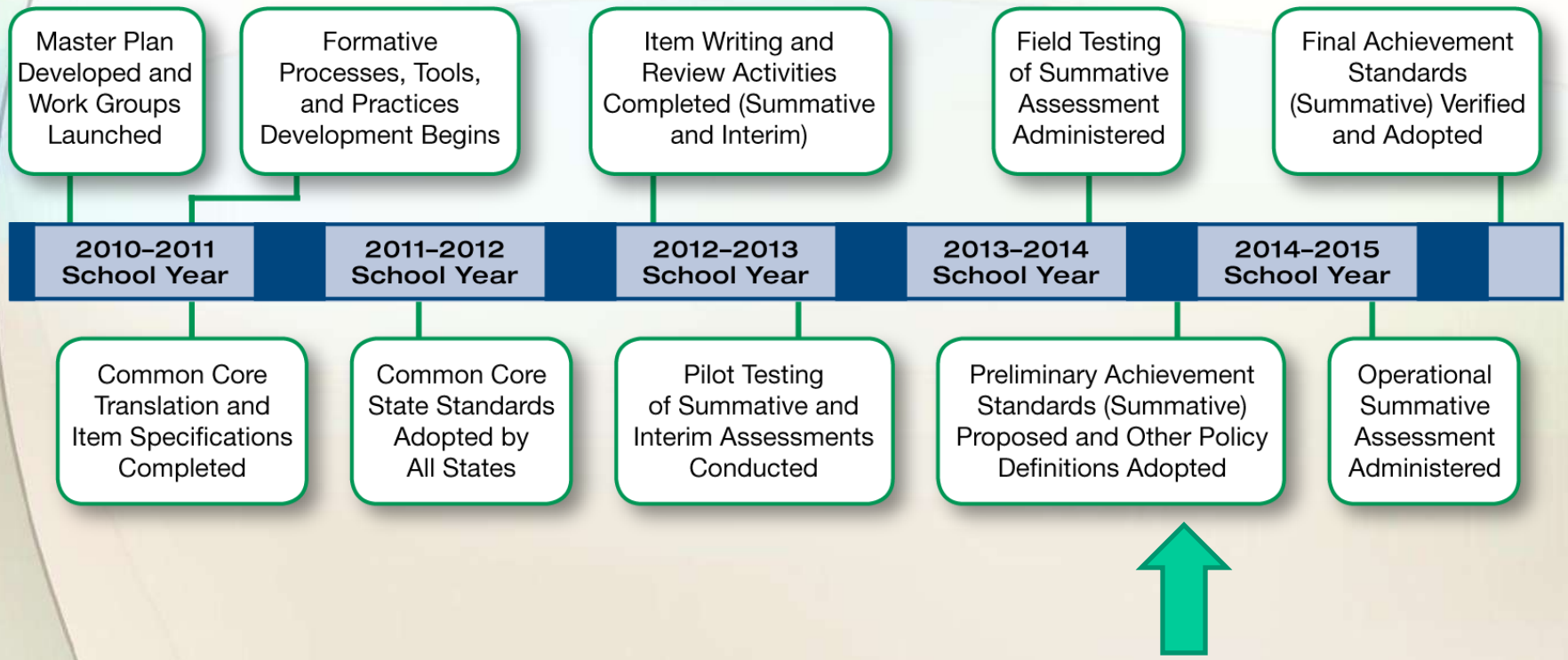
Oregon Department of Education

Development Timeline



Smarter Balanced Assessment Consortium

Student Perspectives

"Typing was hard but I thought it [test] was more different and cool. Writing is good because I can write down my thoughts. I have good explanations that I want someone to hear." **–Jacklyn, 5th Grade**

"Practice typing because there's a lot of typing, and practice essays…how to do them…how to write them." –**Van, 4th Grade**

"Practice typing." –**Darbi, 5th Grade**

"…Good to teach us [students] how to go more in-depth with essay, paragraph, and sentence structure." **–Ella, 6th Grade**

"Tell them they need to prepare for not just clicking an answer but wording it [responses] in a way that makes sense…work on typing and work on how to answer in words." **–Sicily, 6th Grade**

Smarter Balanced
Assessment Consortium

Moving Forward

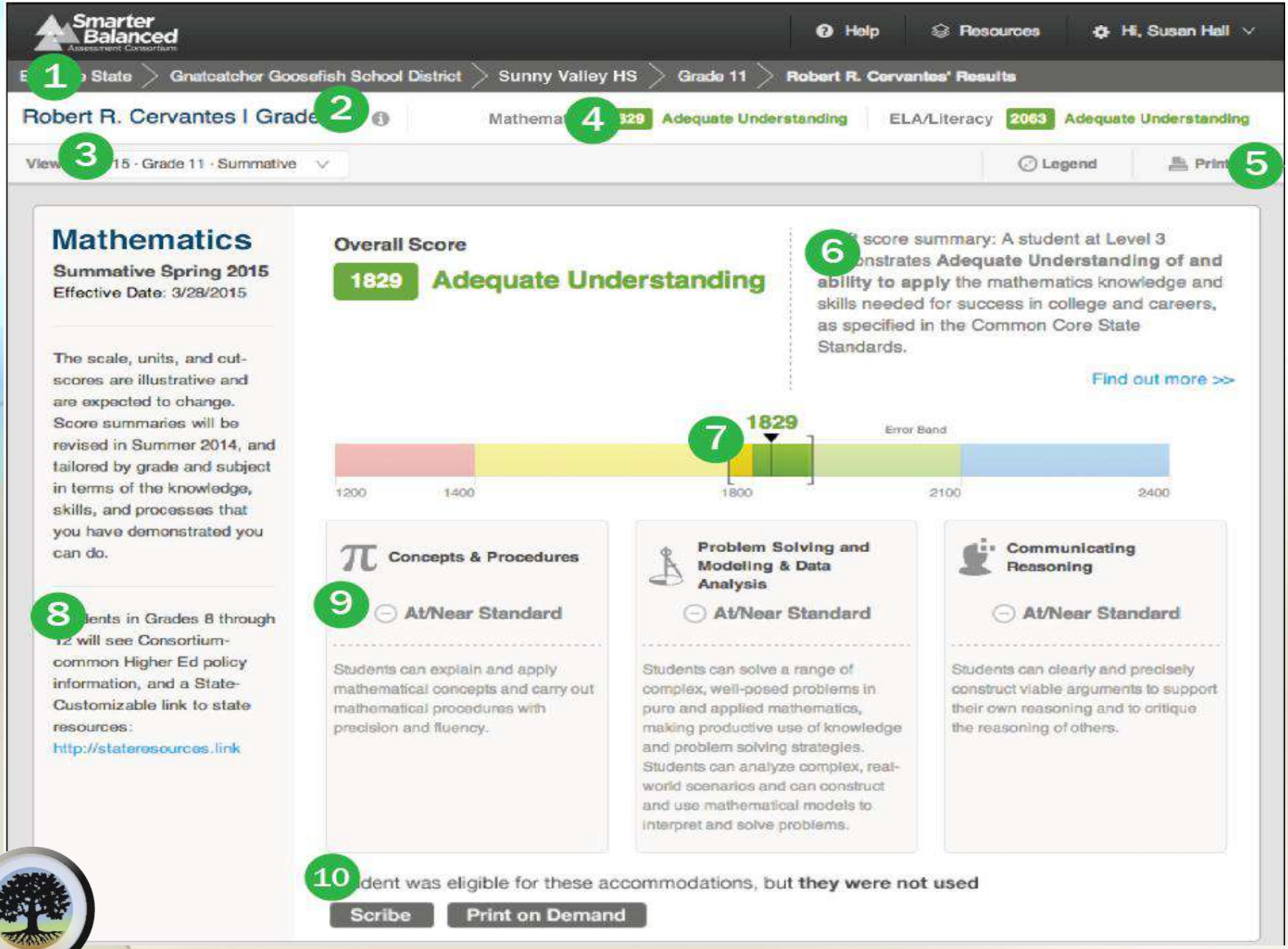
2013-14	2014-15 and beyond
OAKS Reading and Writing	Smarter Balanced ELA
OAKS Math	Smarter Balanced Math
OAKS Science and Social Sciences	OAKS Science and Social Sciences
Extended Assessment	Extended Assessment
ELPA	ELPA
Kindergarten Assessment	Kindergarten Assessment

New Portal Address for OAKS: http://oaksportal.org

Testing Windows

Smarter Balanced Math	March 3rd to June 12th**
Smarter Balanced ELA	March 3rd to June 12th**
Science and Social Sciences	January 6th to June 12th
12th Grade Retest Math and Reading	January 6th to June 12th
12th Grade Retest Writing	January 6th to March 13th
ELPA	January 6th to April 15th
Kindergarten Assessment	August 11th to October 23rd

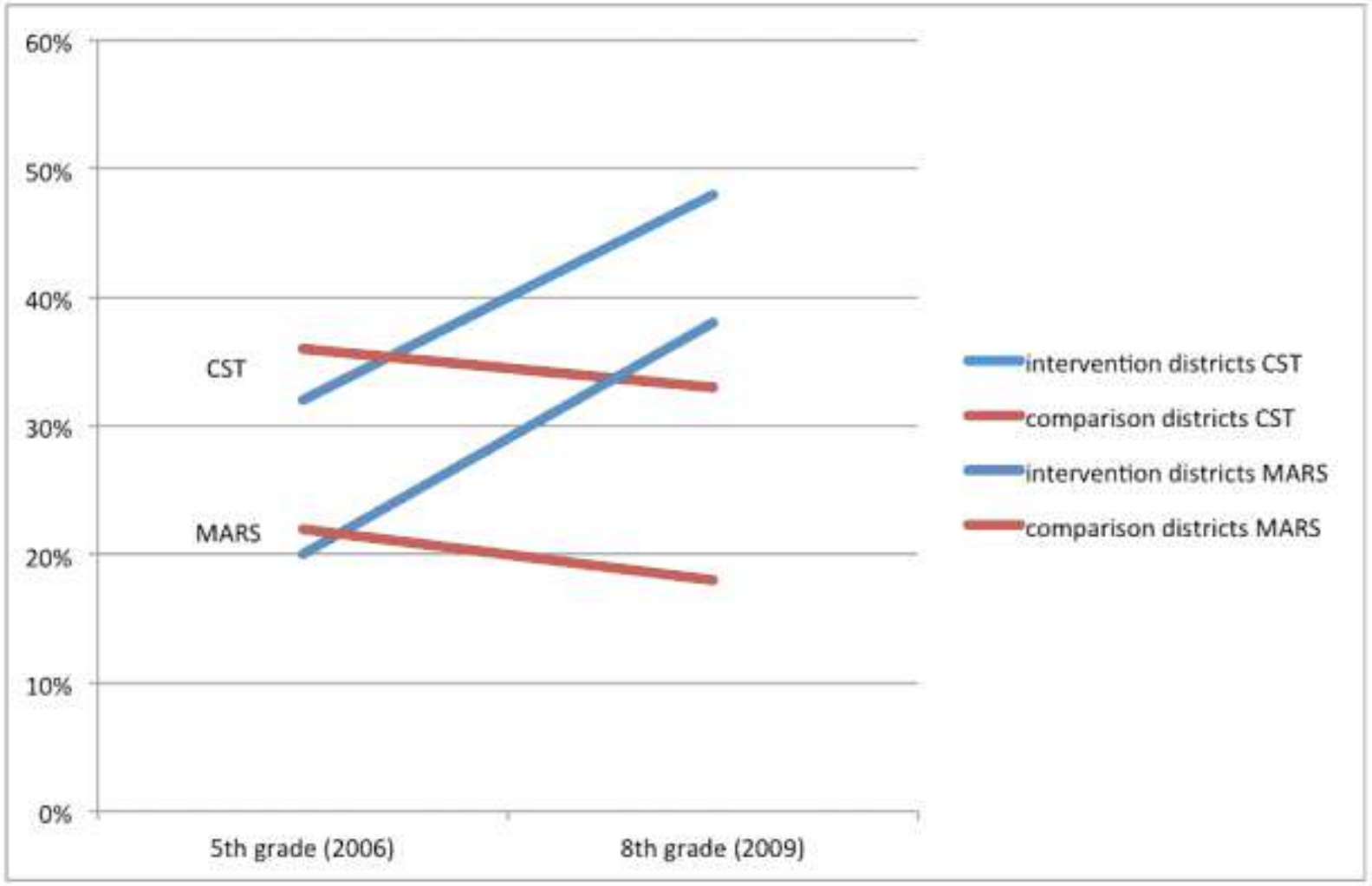
**Testing may begin after students receive 66% of instruction Grades 3-8, and 80% of instruction High School


Smarter Balanced
Assessment Consortium
Help
Resources
Hi, Susan Hall
1
State
Gnatcatcher Goosefish School District
Sunny Valley HS
Grade 11
Robert R. Cervantes' Results
Robert R. Cervantes | Grade
2
Mathema
4
329
Adequate Understanding
ELA/Literacy
2063
Adequate Understanding
3
15 · Grade 11 · Summative
Legend
Print
5
Mathematics
Summative Spring 2015
Effective Date: 3/28/2015
The scale, units, and cut-scores are illustrative and are expected to change. Score summaries will be revised in Summer 2014, and tailored by grade and subject in terms of the knowledge, skills, and processes that you have demonstrated you can do.
8
dents in Grades 8 through 12 will see Consortium-common Higher Ed policy information, and a State-Customizable link to state resources:
http://stateresources.link
Overall Score
1829
Adequate Understanding
6
score summary: A student at Level 3 onstrates Adequate Understanding of and ability to apply the mathematics knowledge and skills needed for success in college and careers, as specified in the Common Core State Standards.
Find out more >>
7
1829
Error Band
1200
1400
1800
2100
2400
Concepts & Procedures
9
At/Near Standard
Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.
Problem Solving and Modeling & Data Analysis
At/Near Standard
Students can solve a range of complex, well-posed problems in pure and applied mathematics, making productive use of knowledge and problem solving strategies. Students can analyze complex, real-world scenarios and can construct and use mathematical models to interpret and solve problems.
Communicating Reasoning
At/Near Standard
Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others.
10
dent was eligible for these accommodations, but they were not used
Scribe
Print on Demand

"…the best preparation for the CCSS assessments, with their commitment to assessing all the standards, including the Standards for Mathematical Practice, is high-quality instruction…"

NCTM President Diane J. Briars

Student Achievement Before and After Intervention



(Boaler & Foster, 2014)

MARS Task

Baseball Jerseys

This problem gives you the chance to:
- work with equations that represent real life situations

Bill is going to order new jerseys for his baseball team.

The jerseys will have the team logo printed on the front.

Bill asks two local companies to give him a price.

1. 'Print It' will charge $21.50 each for the jerseys.

   Using n for the number of jerseys ordered, and c for the total cost in dollars, write an equation to show the total cost of jerseys from 'Print It'.

   _____

2. 'Top Print' has a one-time setting up cost of $70 and then charges $18 for each jersey.

   Using n to stand for the number of jerseys ordered, and c for the total cost in dollars, write an equation to show the total cost of jerseys from 'Top Print'.

   _____

3. Bill decides to order 30 jerseys from 'Top Print'.
   How much more would the jerseys cost if he buys them from 'Print It'?
   Show all your calculations.

   _____

4. Use the two equations from questions 1 and 2 to figure out how many jerseys Bill would need to buy for the price from 'Top Print' to be less than from 'Print It'.
   Explain how you figured it out.

   _____

Performance Assessment Tasks

Video: How to Learn Math: Teaching for a Growth Mindset

http://youtu.be/EbhJk62N05I

Six Item Types

1. Selected Response
2. Constructed Response
3. Extended Response
4. Technology Enabled
5. Technology Enhanced
6. Performance Tasks

Selected Response

Single Response– Multiple Choice

Select the statement that explains how the values of the numbers 420 and 4200 are different.

(A) 4200 is 1000 times as large as 420

(B) 4200 is 100 times as large as 420

(C) 4200 is 10 times as large as 420

(D) 4200 is 1 time as large as 420

Selected Response

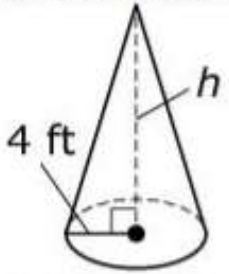
Multiple Correct Options

Select **all** equations that are true.

- ☐ $\frac{4}{10} = 0.04$
- ☐ $\frac{17}{100} = 0.17$
- ☐ $\frac{9}{100} = 0.09$
- ☐ $\frac{6}{100} = 0.60$

Constructed Response

A cone with radius 4 feet is shown. Its approximate volume is 165 cubic feet.

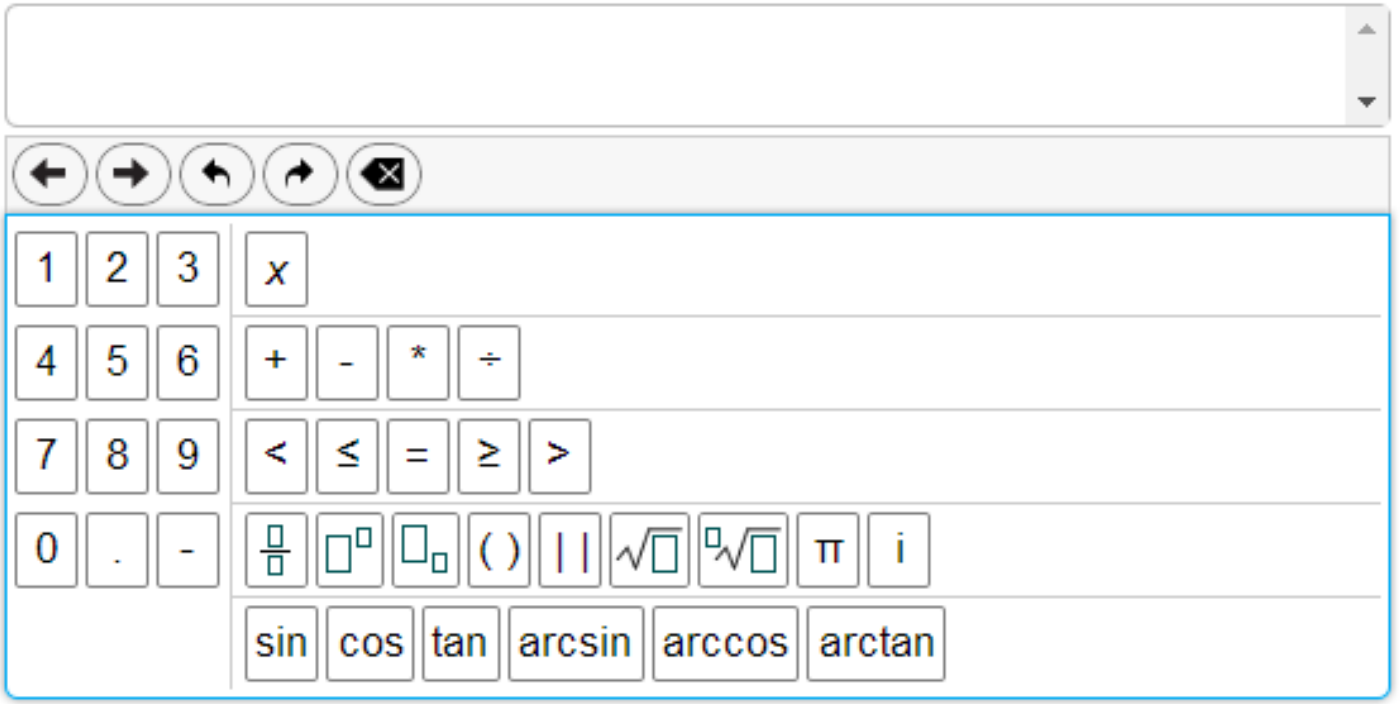


Enter the height of the cone, in feet. Round your answer to the nearest hundredth.

Constructed Response

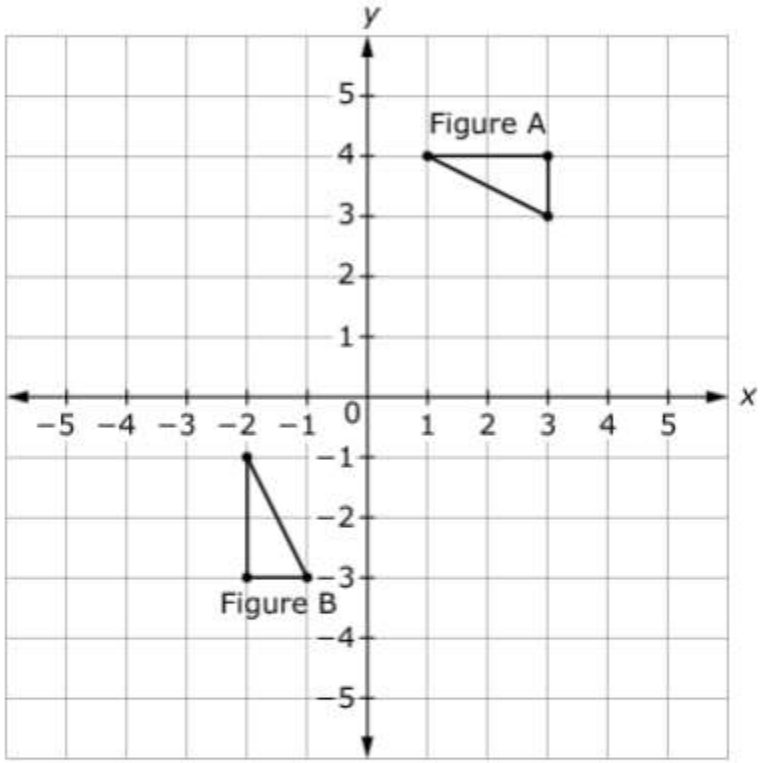
Multiply and combine like terms to determine the product of these polynomials.

$(2x - 3)(5x + 6)$



Extended Response

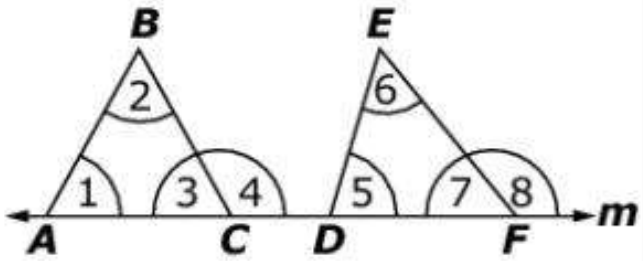
Two figures are shown on the coordinate grid.



Show that Figure A and Figure B are congruent by describing a sequence of basic transformations that maps Figure A onto Figure B. In your response, be sure to identify the transformations in the order they are performed.

Technology Enabled

The base of triangle *ABC* and the base of triangle *DEF* lie on line *m*, as shown in the diagram.



not drawn to scale

The measure of ∠4 is less than the measure of ∠8.

For each comparison, select the symbol (<, >, =) that makes the relationship between the first quantity and the second quantity true.

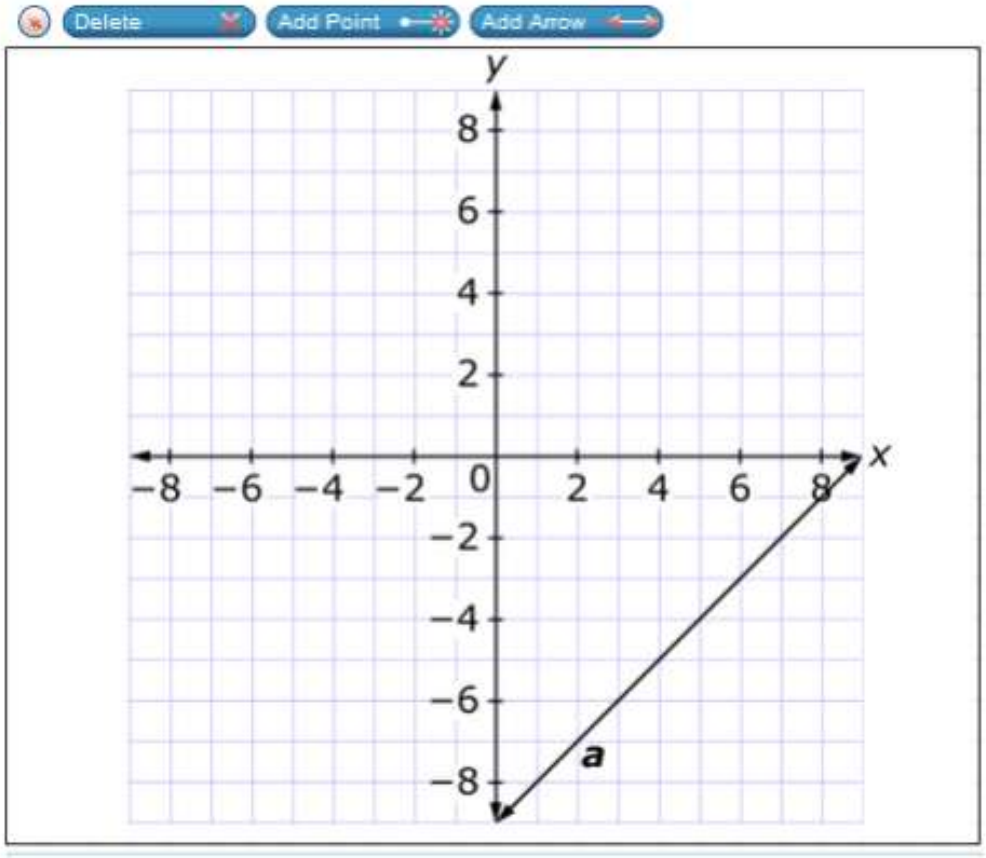
First Quantity	Comparison	Second Quantity
$m\angle 3$	< = >	$m\angle 7$
$m\angle 1 + m\angle 2$	< = >	$m\angle 5 + m\angle 6$

Technology Enhanced

1834

Line *a* is shown on the graph. Use the Add Arrow tool to construct line *b* on the graph so that:

- Line *a* and line *b* represent a system of linear equations with a solution of (7, −2).
- The slope of line *b* is greater than −1 and less than 0.
- The *y*-intercept of line *b* is positive.



4TH GRADE PERFORMANCE TASK

A TRIP TO THE ZOO

Anna and her family go to the zoo. The zoo ticket prices, snack shop menu, and gift store prices are shown in the tables.

Snack Shop Menu

Food	Price
Hamburger	$5
Cheeseburger	$6
Salad	$3
Pizza	$3
Drinks	**Price**
Water	$1
Milk	$2
Juice	$3
Soda	$3

Zoo Ticket Prices

Type of Ticket	Price
Adult (ages 12-64)	$16
Senior (ages 65+)	$13
Child (ages 2-11)	$11
Under 2	Free

Gift Store Prices

Gift	Price
 Stuffed panda bear	$ 9
 Zoo magnet	$4
 Pack of 4 pens	$6
 Photo frame	$8

The family has $100 to spend at the zoo…

6TH GRADE PERFORMANCE TASK

GUEST, GUEST (State-SSID: GUEST -175237) | G6 Math Performance Task (

ZOOM IN | ZOOM OUT | CALCULATOR

SAVE | PAUSE | BACK | NEXT

CEREAL BOXES

A cereal company uses cereal boxes that are rectangular prisms The boxes have the dimensions shown.

- 12 inches high
- 8 inches wide
- 2 inches deep

The managers of the company want a new size for their cereal boxes. The new boxes have to be rectangular prisms. You will evaluate one box design the company proposed. Then you will create and propose your own design for the company.

Requirements for the new boxes:

- The new boxes have to use less cardboard than the original boxes.
- The new boxes have to hold the same or a greater volume of cereal as the original boxes.

Passage

1

Determine the volume of the current cereal box with the dimensions 12 inches high, 8 inches wide, and 2 inches deep.

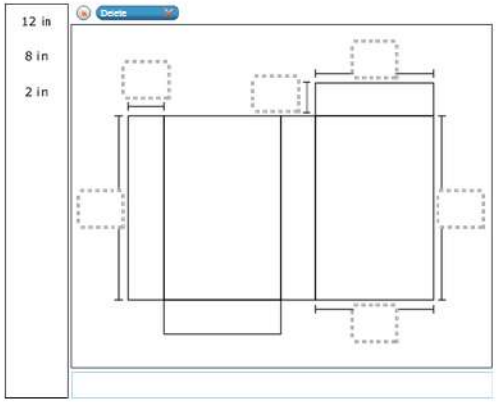
Find the volume, V, in cubic inches, of each box.

Volume of Original Box: $V =$ __ in^3

1 2 3
4 5 6
7 8 9
0 . -

2

Label the dimensions of the net for the current cereal box with dimensions 12 inches high, 8 inches wide, and 2 inches deep.



3

Determine the surface area, S, in square inches, of the current cereal box with dimensions 12 inches high, 8

Scoring Question 1

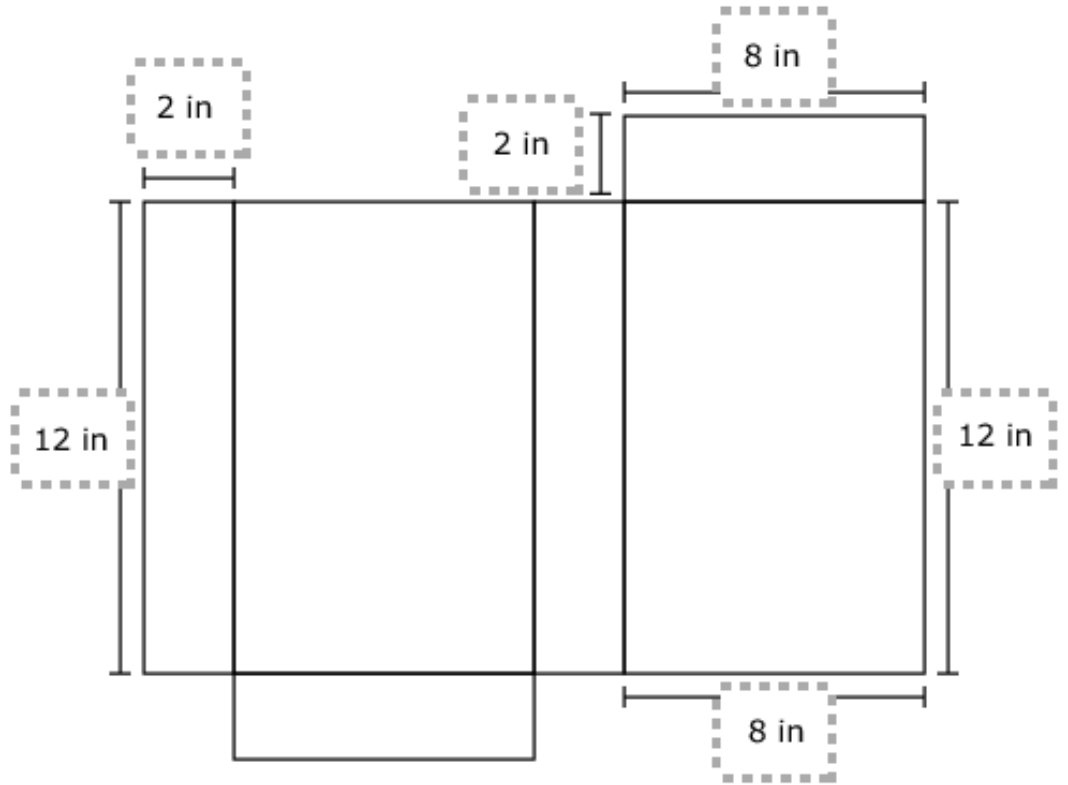
Full credit response (1 point) includes

192 in^3

No credit response (0 points) includes none of the features of a full credit response

Scoring Question 2

Full credit response (1 point) includes



No credit response (0 points) includes none of the features of a full credit response

Scoring Question 3

Full credit response (2 point) includes

$272\ in^2$

Partial credit response (1 point) includes all of the following common mistakes 136, 176, 248, 256, 80, 224, 240 or square inches consistent with an error in question 2

No credit response (0 points) includes none of the features of a full or partial response

Scoring Question 4

Full credit response (2 point) includes

Comparing the proposed volume to the requirements **-and-**

Comparing the proposed surface area to the requirements **-and-**

Judging the proposed dimensions to be inappropriate

Partial credit response (1 point) includes

Valid comparisons but no judgment call

No credit response (0 points) includes none of the features of a full credit response

Scoring Question 5

Full credit response (3 points) includes

Giving the dimensions for the cereal box design **-and-**

Explaining how the design meets the volume requirement **-and-**

Explaining how the design meets the surface area requirement

Partial credit response (2 points) includes two of the full credit features

Partial credit response (1 point) includes one of the full credit features

No credit response (0 points) includes none of the full credit features

Score Student Responses

Scoring Performance Tasks

Practice Test Grade 6 Performance Task Question 4

Question 4.

The company proposes a new cereal box with dimensions 10.5 inches high, 7.5 inches wide, and 4 inches deep. The new cereal box is a rectangular prism. Determine if this new box meets each of the requirements*. Explain why or why not.

*requirements (from question 1) The volume must be greater than or equal to 192 in^2 and the surface area must be less than 272 in^2

6TH GRADE QUESTION 4

Full credit response (2 points) includes

Comparing the proposed volume to the requirements

-and-

Comparing the proposed surface area to the requirements

-and-

Judging the proposed dimensions to be inappropriate

Partial credit response (1 point) includes

Valid comparisons but no judgment call (vise versa)

No credit response (0 points) includes

None of the features of the full or partial response

6TH GRADE QUESTION 4

Full credit response (2 points) example:

V = 315 cubic inches and 315 > 192. S = 301.5 square inches and 301.5 > 272. The box should not be used because the surface area is too large.

Partial credit response (1 point) examples:

V = 315 cubic inches and 315 > 192. S = 301.5 square inches and 301.5 > 272.

-or-

The box should not be used because the surface area is too large

No credit response (0 points) example:

The box can be used because it meets the requirements.

Question 4 Student Responses

$10.5 \times 7.5 \times 4 = 315 \text{ in}^3$

$2(10.5 \times 7.5 + 10.5 \times 4 + 7.5 \times 4) = 301.5$

No it doesn't meet the requirements the volume is greater $315 \text{ in}^3 > 192 \text{ in}^3$, but the surface area is larger $301.5 \text{ in}^2 > 272 \text{ in}^2$ using more cardboard.

2 points

Question 4 Student Responses

Volume of a new box is 315 in^3 and 315 > 192. Surface area of new box is 301.5 in^2 and 272>301.5. The box does not follow the new requirements, because the surface area is too big.

1 point

Question 4 Student Responses

Volume = 315 in^2 S.A = 301.5 in

Surface area is too big! Takes too much cardboard

42 x 2 = 84
30 x 2 = 60
78.75
78.75
157.50

10.5
× 4
2
+ 40
42

84
260
+ 157.50
301.50

1 point

Question 4 Student Responses

$$\begin{array}{r} 157 \\ +\ 60 \\ +\ 84 \\ \hline 301 \end{array}$$

V = 315 SA = 301 Yes

0 points

Question 4 Student Responses

10.5 x 7.5 x 4 = 315 volume

10.5 x 4 x 2 = 80

7.5 x 4 x 2 = 60

10.5 x 7.5 x 2 = 157.5 297.5 surface area

It doesn't work because the new cereal box uses more cardboard 297.5 (new sa) 272 (old sa)

1 point

Question 4 Student Responses

$V = 315in^3$

$SA = 301.5in^2$

This does not work. The volume is bigger, but it uses more cardboard.

2 points

Make writing a part of the learning

Video: Steve McKinney: Keeping It Real

http://www.Americaachieves.org

http://bcove.me/eqw8vuyz

Blog

WESLEY'S BLOG

MONDAY, JANUARY 10, 2005

Derived Measurement Extended Response

Mark's heart beats 16 times in 15 seconds. At that rate, how many times will it beat in one minute? Be sure to include the appropriate unit.

I know that Mark's heart beats 16 times in 15 seconds. I also know that 15 seconds is a quarter of a minute. So I multiplied 16 by 4, and the product was 64 BPM. The reason I multiplied 16 by 4 is because I know that 15 seconds divides into 1 minute 4 times. That is how I got my solution.

POSTED BY PERIOD5WB AT 10:34 AM

1 COMMENTS:

misterteacher said...

Wesley,
Here is how I scored your response:

ABOUT ME

PERIOD5WB

VIEW MY COMPLETE PROFILE

PREVIOUS POSTS

Rational or Irrational?

Short Cycle 2

I Power Blogger

Google Forms

The Box Factory

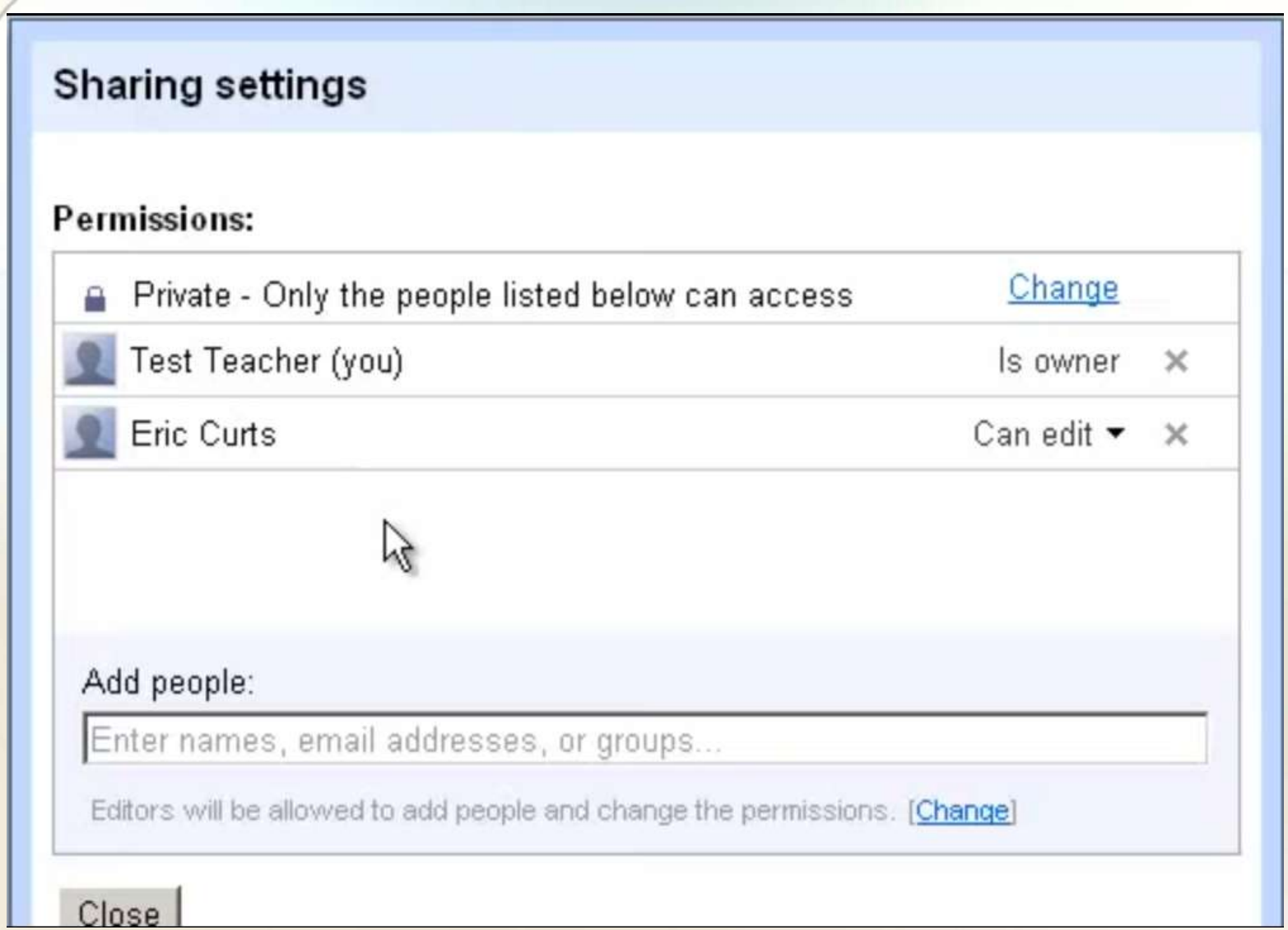
* Required

The portion of the graph with domain x > 10 shows positive volume. What does this mean in the context of the problem? *

Explain the meaning of the parts of the graph showing a negative volume. *

Name and Password

Google Doc Math Journal



Criteria

Criteria	
1. Clear Purpose	Why am I assessing?
2. Clear Learning Target(s)	What am I assessing?
3. Quality Assessment	How can I assess it well?
4. Proper Test Administration	How will I ensure test conditions do not interfere with a student's ability to perform well on a test?
5. Effective Communication of Results	How will I share results for maximum impact?

http://www.ode.state.or.us/go/LocalAssessmentGuidance

RESOURCES

Study: Boaler, J., & Foster, D. (2014). Raising Expectations and Achievement. The Impact of Wide Scale Mathematics Reform Giving All Students Access to High Quality Mathematics. http://www.youcubed.org

Tasks: SBAC Grade 4 and 6 Math Performance Task

http://sbac.portal.airast.org/practice-test/resources/

Mathematics Assessment Project: Baseball Jerseys

http://map.mathshell.org/materials/tasks.php?taskid=362&subpage=apprentice

Videos: Steve McKinney: Keeping It Real Americaachieves.org

http://bcove.me/eqw8vuyz

How to Learn Math: Teaching for a Growth Mindset

http://youtu.be/EbhJk62N05I

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