

CASAS Assessments: New Reading and Math Test Series

Linda Taylor, CASAS

ltaylor@casas.org

800-255-1036, ext. 186

Nancy Martin, CASAS

nmartin@casas.org

800-255-1036, ext. 109

- New CASAS Reading test series
 - Revised CASAS Reading Content Standards

- CASAS Listening test (980 series)

- New CASAS Math test series

- Field testing Update
 - Test Research Studies

Approved through February 2019

- Life and Work Reading (80 series) and Beginning Literacy, Forms 27 and 28
- Life and Work Listening (980 series)
- Life Skills Math (30 series)



- Test content is aligned with College and Career Readiness (CCR) Standards for Adult Education
 - Reading - comprehension questions assess higher order reading skills, including citing evidence from complex texts and academic vocabulary
 - Math - math concepts are assessed via common life and work applications
- Both computer-based and paper-based administration will be available



New GOALS Test Series Timeline

- 2013-2016 Wrote and field-tested new Reading and Math items
- 2015-2016 Conducted research studies with new test forms
- Oct. 2016 Submitted Reading and Math series to NRS for approval for ABE/ASE
 - 2017 Conduct additional studies, as needed. Ready for ABE/ASE programs to use, depending on OCTAE approval process.
- 2017-2019 Develop Reading and Listening series for ELLs. Submit to NRS for approval. (Depends on OCTAE finalization date of revised NRS ELL Descriptors)
- 2019 Ready for ELL programs to use or later



Content Alignment Studies

- Panels of 5 - 7 Subject Matter Experts (SMEs) reviewed all Reading and Math items on final test forms.

Standard Setting (Cut Score) Studies

- Panels of 11 - 15 Subject Matter Experts (SMEs) in ABE/ASE/HSE recommended cut scores that were used to determine the scale score ranges for each NRS EFL for the ABE/ASE/HSE Reading and Math test forms.

Test Development Focus Groups

- CASAS has conducted Focus Groups since 2015 at the National Summer Institute to get expert practitioner content input on the alignment of Reading and Math test items to the CCRS.

- *New CASAS Reading Series measures:*
 - CASAS Competencies
 - Content Standards
 - CASAS Reading Content Standards
 - CCR Standards for Adult Education in the areas of:
 - Reading
 - Reading Foundations
 - Reading Task Areas
 - Depth of Knowledge (DOK)
 - Academic Vocabulary - drawn from the Academic Word List (AWL)

- The College and Career Readiness (CCR) Standards for Adult Education were published by the U.S. Department of Education, Office of Career, Technical, and Adult Education (OCTAE) in April 2013.
- The CCR Standards are the Anchor Standards for the Common Core State Standards for K-12 programs. The April 2013 study was based on these standards.
- The April 2013 CCRS study focused on Adult Basic Education (ABE) and Adult Secondary Education (ASE) learners, not on Adult ESL learners.
 - Change in terms from ESL (English as a Second Language) learners to ELL (English Language Learners)

In 2015, OCTAE funded a similar study for Adult ELLs.


- This project produced new Adult ELL standards in October 2016, called *English Language Proficiency Standards for Adult Education* (ELPS).
 - The ELPS is intended to be a “language lift” to assist Adult ELLs to achieve the CCR Standards for Adult Education.
- This OCTAE project will also produce:
 - related training materials for Adult ELLs, and
 - revised NRS EFL Descriptors for Adult ELLs, due to be published for public review in early Summer 2017
- Adult ELL programs should continue to use current NRS ESL Descriptors (EFLs)

ABE/ASE NRS Educational Functioning Levels, CCR & CASAS Test Levels, & Estimated ESL Levels

EFL	ABE/ASE Level	CCR Level	Lexile Level	CASAS Test Level	ESL Level (estimated)
1	Beg Literacy	A (K-1)	N/A	A	Beg Lit, Low Beg., High Beg.
2	Beg Basic	B (2-3)	420-820	B	Low Intermediate
3	Low Int. Basic	C (4-5)	740-1010	B	High Intermediate
4	High Int. Basic	D (6-8)	925-1185	C	Advanced
5	Low Adult Secondary	E (9-10)	1050-1335	D	N/A
6	High Adult Secondary	E (11-CCR)	1185-1385	E	N/A

Example of Reading Anchor and Level-Specific Standards

CCR Anchor 2: Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

A	B	C	D	E
<p>Identify the main topic and retell key details of a text.</p>	<p>Determine the main idea of a text; recount the key details and explain how they support the main idea.</p>	<p>Determine the main idea of a text and explain how it is supported by key details; summarize the text. Determine a theme of a story, drama, or poem from details in the text; summarize the text.</p>	<p>Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.</p>	<p>Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.</p>
<p>BEG LIT ESL, LOW BEG ESL, HIGH BEG ESL</p>	<p>LOW INT ESL</p>	<p>HIGH INT ESL</p>	<p>ADV ESL</p>	<p> NRS Level</p>

- R1 - cite evidence; infer
- R2 - main idea; summarize
- R3 - analyze text development and interaction
- R4 - meaning of words and phrases (vocabulary)
- R5 - text structure
- R6 - author's point of view
- R7 - diverse media and formats
- R8 - analyze and evaluate arguments
- R9 - compare 2 or more texts
- R10 - text complexity and independent reading

- RF1 - organization and basic features of print
 - (Not in CCRS. Only in CCSS.)
- RF2 - phonological awareness
- RF3 - phonics and word recognition
- RF4 - read fluently enough to support comprehension

New CASAS Reading Series Test Reporting Categories

CASAS Reading Content Areas	CCRS Reading Anchor*
Vocabulary	R4
Reading Comprehension Skills	
Locate information/detail; cite evidence	R1, R2
Identify main idea and details	
Higher Order Reading Skills	
Cite evidence; infer; draw conclusions; summarize	R1, R2
Text structure and features	R5
Author's purpose and point of view	R6
Analyze claim/argument	R8
*CCRS Reading Standards R7, R9 and R10 are measured across content areas.	



4 Test Levels: Levels A to D

Multiple choice -- All levels

- Comprehension (in existing Reading tests)
- Sentence completion

New text and item features - Levels B, C, D


- Numbered lines in text passages
- Items containing references to numbered lines in text
- Underlined words embedded in passage

Level A only: **Photo prompts** and distractors for some items

Item Families - All levels

Photo Prompts (Level A only)

Question 4




mat map may man

A B C D

The image shows a multiple-choice question interface. At the top, it says "Question 4". Below this is a square photograph of a man. Underneath the photo are four yellow rectangular buttons, each with a word and a letter below it. The buttons are labeled "mat" (A), "map" (B), "may" (C), and "man" (D). Each letter has a small square checkbox below it.

- Grouped items related to one display
 - Display length ranges: single sentence to passage
- More efficient use of testing time

- “Family members” may vary
 - Difficulty
 - Standards/competencies addressed



Employee Computer and Internet Policy

1 All Syxtar employees have a computer Internet connection to use for company business. The
2 company also has a liberal policy of giving employees up to 30 minutes of personal Internet
3 use each day. However, communications on company computers belong to Syxtar. The company
4 can look at all messages and documents on its computers and other company technology.

5 Since the monitoring system cannot check all websites, employees may come across websites
6 with controversial content. It is impossible for the IT Department to define such content precisely.
7 Therefore, it is the responsibility of each employee to decide if a website contains inappropriate
8 material. If a website has such material, employees are prohibited from viewing that material.

- Page 23 -

Which sentence explains what employees should do if they find inappropriate websites?

The sentence starting on _____ .

- A. line 2
- B. line 4
- C. line 5
- D. **line 8**

Which statement best summarizes this announcement?

- A. The company requires a more straightforward computer-use policy.
- B. Too many employees have violated proper computer-use standards.
- C. The company plans to prohibit sending and receiving personal e-mail.
- D. **There are restrictions to the use of company computers by employees.**

Which lines explain that the company is inspecting employees' use of computers and the internet?

- A. lines 1-2
- B. **lines 3-4**
- C. lines 5-6
- D. lines 7-8

Which word means the same as liberal as used in this announcement?

- A. **generous**
- B. radical
- C. traditional
- D. Widespread



New Item and Display Features

- Format variations
 - Numbered lines of text
 - Underlined words

- Facilitates test taker's ability to quickly go back to specific text location for evidence

- Better utilization of longer displays



SYXTAR

Employee Computer and Internet Policy

1 All Syxtar employees have a computer Internet connection to use for company business. The
2 company also has a liberal policy of giving employees up to 30 minutes of personal Internet
3 use each day. However, communications on company computers belong to Syxtar. The company
4 can look at all messages and documents on its computers and other company technology.

5 Since the monitoring system cannot check all websites, employees may come across websites
6 with controversial content. It is impossible for the IT Department to define such content precisely.
7 Therefore, it is the responsibility of each employee to decide if a website contains inappropriate
8 material. If a website has such material, employees are prohibited from viewing that material.

– Page 23 –

Cite evidence in text with numbered lines

Which lines explain that the company is inspecting employees' use of computers and the internet?

- A. lines 1-2
- B. **lines 3-4**
- C. lines 5-6
- D. lines 7-8

Incomplete stem (missing last portion)

- Commonly used in academic test items
- Distractors vary in length (single word or phrase)

Which sentence explains what employees should do if they find inappropriate websites?

The sentence starting on _____ .

- A. line 2
- B. line 4
- C. line 5
- D. line 8**

Which statement best summarizes this announcement?

- A. The company requires a more straightforward computer-use policy.
- B. Too many employees have violated proper computer-use standards.
- C. The company plans to prohibit sending and receiving personal e-mail.
- D. There are restrictions to the use of company computers by employees.**

Which word means the same as liberal as used in this announcement?

- A. generous
- B. radical
- C. traditional
- D. Widespread

Item Family Approach

Business or Busyness?

The sight of a busy employee warms the heart of a manager. When workers are frantically busy with e-mails, constantly making phone calls, and consulting with fellow employees even during lunch, however, they are not necessarily as productive as they could be. Success in life may mean enjoying the journey rather than the destination, but success in business is measured by end results.

Calling and e-mailing need to happen, but they should be purposeful and efficient. Meetings should be focused and short. And in an over-busy workplace, interruptions and distractions take their toll on everyone's concentration and productivity.

The atmosphere at some of the most successful companies is often anything but frenetic; it can be calm and casual. The relaxed atmosphere allows quiet focus that encourages productive output and meaningful results. These companies recognize a difference between busyness and business.

What point does the article make?

- In business as in life, how we achieve our goals matters.
- Managers too often misinterpret what their staff is saying.
- ✓ What we observe in a workplace may not tell the whole story.
- It is misleading to look at end results as a measure of business success.

What does the writer say about everyday life?

- A successful life is very similar to a successful business.
- ✓ Success in life is not necessarily measured by accomplishments.
- Everyone needs balance in their life between work and play.
- Most people do not take life as seriously as they should.

Item Family Approach

Business or Busyness?

The sight of a busy employee warms the heart of a manager. When workers are frantically busy with e-mails, constantly making phone calls, and consulting with fellow employees even during lunch, however, they are not necessarily as productive as they could be. Success in life may mean enjoying the journey rather than the destination, but success in business is measured by end results.

Calling and e-mailing need to happen, but they should be purposeful and efficient. Meetings should be focused and short. And in an over-busy workplace, interruptions and distractions take their toll on everyone's concentration and productivity.

The atmosphere at some of the most successful companies is often anything but frenetic; it can be calm and casual. The relaxed atmosphere allows quiet focus that encourages productive output and meaningful results. These companies recognize a difference between busyness and business.

What does the writer advocate?

- ✓ reassessing customary indicators of worker productivity
- reviewing approaches to making staffing decisions
- reevaluating accepted concepts of manager/employee relations
- rethinking the emphasis on maximum worker output

What does the writer offer?

- an approach to setting production goals
- ✓ an observation on workplace efficiency
- a method for measuring worker productivity
- a way of monitoring workplace activity levels

Item Family Approach

Business or Busyness?

The sight of a busy employee warms the heart of a manager. When workers are frantically busy with e-mails, constantly making phone calls, and consulting with fellow employees even during lunch, however, they are not necessarily as productive as they could be. Success in life may mean enjoying the journey rather than the destination, but success in business is measured by end results.

Calling and e-mailing need to happen, but they should be purposeful and efficient. Meetings should be focused and short. And in an over-busy workplace, interruptions and distractions take their toll on everyone's concentration and productivity.

The atmosphere at some of the most successful companies is often anything but frenetic; it can be calm and casual. The relaxed atmosphere allows quiet focus that encourages productive output and meaningful results. These companies recognize a difference between busyness and business.

What conclusion can be drawn from the article?

- Productivity is not a good measure of end results.
- Improving efficiency will not increase productivity.
- ✓ Activity is not the only indicator of productivity.
- Productivity should not be a main concern for businesses.

Based on the article, which of these statements is true?

- A busy staff is a sign of an ineffective manager.
- The more relaxed the workplace, the more productive the business.
- Staff input is vital in achieving business goals.
- ✓ Results are the best indicator of workplace efficiency.

- Describe levels of cognitive processing
- The new *College and Career Readiness Standards* and the *Common Core State Standards* in language arts and mathematics reflect higher-order thinking.
- One of 4 criteria of Norman Webb's Alignment Tool (2005), WI Center for Education Research
- Related to *Bloom's Taxonomy of Educational Objectives* - Knowledge, Understanding, Application, Analysis, Synthesis, Evaluation (1956)



- Four DOK levels:
 1. Recall, Reproduction, Recitation
 2. Application of Skill/Concept
 3. Strategic Thinking
 4. Extended Thinking
- Levels of cognitive processing, not difficulty
- Final Jeopardy is always a DOK 1!!!



- Combined, reduced, re-named and re-organized the categories and standards
 - Number of categories reduced from 9 to 5
 - Number of standards reduced from 125 to 51
- Added new standards from the CCR Standards for Adult Education in the English Language Arts and Literacy areas of Reading, Reading Foundations and Language
 - All CCRS Standards in these 3 areas are referenced at least once in the revised CASAS Reading Standards.
- To align assessment with instruction, the categories in the revised CASAS Reading Standards will be the same as the categories for reporting test results for the new CASAS Reading series.
- Posted on www.casas.org - with dots for ABE/ASE

Revised CASAS Reading Standards Categories

1 - Foundational Literacy

2 - Language and Vocabulary

3 - Reading Comprehension Skills

Literal Comprehension - DOK 1

Informational and Literary Text

Includes CASAS Reading Task Areas:

Forms, Charts/Tables, Text, Other Formats

4 - Higher Order Reading Skills - DOK 2 and higher

Informational and Literary Text

5 - Higher Order Reading Skills

Literary Text Only

- CASAS Life and Work Listening 980 series is approved by the U.S. Department of Education, OCTAE, for NRS reporting purposes.
 - NRS approval is valid through February 2019.
 - This is the same approval period as all other NRS-approved tests.

- CASAS continues to support agencies who use the Life and Work Listening 80 series for state reporting or at the local agency level.

- The 980 series is available in CASAS eTests Online and in CASAS eTests Desktop. CD versions are also available.



New Math GOALS Test Series

I. What it measures

II. Features

III. Blueprint

IV. Examples



- ***New CASAS Math GOALS Series measures:***
 - CASAS Competencies
 - Content Standards
 - CASAS Math Content Standards
 - CCR Standards for Adult Education
 - Number Sense
 - Algebra
 - Geometry
 - Measurement
 - Statistical Reasoning
 - NRS Math Content Standards (upcoming)
- *Math GOALS Series* include skills used in academic and employment settings, as well as everyday life-skills.

CASAS COMPETENCIES BY MATH GOALS FORM		
<i>CASAS Competencies:</i>	A/B %	C/D/E%
1) Consumer Economics	30	25
2) Community Resources	17	7
3) Health	3	0
4) Employment	13	34
5) Learning +Thinking	37	34

- **Deeper understanding** of key mathematical foundations, concepts, procedural fluency, and applications within and outside the classroom;
- **Coherent progressions** within and across levels...build new understanding onto previous foundations; and
- **Rigorous application** of *conceptual* understanding, *procedural* skill, and *application* to real-world contexts...students employ concepts from several perspectives...know more than “how to get the answer”.

In a nutshell, emphasis is now on:

- ***“seeing the bigger picture”***
- ***knowing the meaning of answers (not just having numbers)***
- ***applying concepts to solve problems***



A **range of item types** is provided, including:

- Word problems (reading complexity and cognitive load are consistent with level-specific expectations)
- Simple to advanced calculation
- Traditional academic contexts
- Situational scenarios that reflect real-world applications



Forms A/B (40 items each form) and Forms C/D/E (38 items each form) sample all content areas appropriate for that test level.

Practice items are provided.

Formulae are provided within the item presentation so that focus is on *math concepts and skills*, not memorization.

Basic calculators are provided/allowed.

This is the stem area of the screen:

1 of 2 → Practice Review   Click on icon

How much would it cost to join for April, May and June? (*You may use the calculator.*)

- \$20
- \$40
- \$60
- \$120

1 of 2 → Practice Review

How much would it cost to join for April, May and June? (You may use the calculator.)

- \$20
- \$40
- \$60
- \$120

Calculator ×

0

←	±	√	C	
7	8	9	/	%
4	5	6	*	1/x
1	2	3	-	=
0	.	+		

Calculator opens and can be moved to any position on the screen.

Only basic functions are provided.

Reporting Levels for New CASAS Math Goals Series

Future NRS EFL Level	Future NRS EFL Level Name	CCRS Level <i>NOTE: NOT CASAS LEVELS</i>	CASAS GOALS TEST FORM A/B	CASAS GOALS TEST FORM C/D/E
1	Beginning Literacy	A	Completed	
2	Beginning Basic	B	Completed	
3	Low Intermediate	C	Completed	Completed
4	Middle Intermediate	D	<i>Entry Into L4</i>	Completed
5	High Intermediate	D		Completed
6	Adult Secondary	E		<i>Entry Into L6</i>

CASAS Math Content Areas	CCR Standards
M1: Number Sense	✓
M2: Algebra	✓
M3: Geometry	✓
M4: Measurement	✓
M5: Statistics, Data Analysis, Probability	

** CCRS combines content areas *M4: Measurement* and *M5: Statistics* into one content domain: Measurement and Data.

CASAS Content Domains	CASAS Level* A/B	CASAS Level* C/D/E	College and Career Readiness Standards (CCRS) Covered by CASAS Math Goals Series
M1: Number Sense	21%	21%	<p>At the A/B level, use basic concepts of number system, place values, operations of addition, subtraction, multiplication and division, fractions, fraction equivalents, ratios and proportions.</p> <p>At the C/D/E level, use advanced number concepts such as comparing fractions, using operations with rational numbers and exponents.</p>
M2: Algebra	16%	29%	<p>At the A/B level, understand and reason with properties of four operations, explain patterns in four operations, solve basic one-variable equations.</p> <p>At the C/D/E level, generate equivalent equations and those with two or more variables, understand radicals, use lines and linear equations, use functions and functional expression, including inequalities, polynomials, quadratics, and exponential models.</p>
M3: Geometry	10%	11%	<p>At the A/B level, identify and reason with shapes and their attributes in 2- and 3-dimensions, find area and volume.</p> <p>At the C/D/E level, solve problems of angle, area, congruence, similarity, trigonometry, volumes of cone, pyramids and spheres.</p>
M4: Measurement**	29%	24%	<p>At the A/B level, measure with standard units, time intervals, liquid masses and volumes, area, unit conversions, angle measurements.</p> <p>At the C/D/E level, understand/apply Pythagorean theorem, use volume measurements for complex modeling.</p>
M5: Statistics and Probability**	24%	16%	<p>At the A/B level, understand categories, identify relevant data in tables, represent data in graphs, understand variability, and describe distributions.</p> <p>At the C/D/E level, understand probability, sampling, draw inferences, summarize and interpret data categorical and quantitative data, draw inferences, investigate associations in bivariate data.</p>

* New CASAS Math Goals series utilizes two combined levels A/B (covering CCRS Levels A-C) and C/D/E (covering CCRS Levels C-E).

** CCRS combines content areas M4: Measurement and M5: Statistics into one content domain: Measurement and Data.

CASAS Content Domain	CASAS Level* A/B	CASAS Level* C/D/E	College and Career Readiness Standards Included in CASAS Math Goals Series
M1: Number Sense	21%	21%	<p>At the A/B level, use basic concepts of number system, place values, operations of addition, subtraction, multiplication and division, fractions, fraction equivalents, ratios and proportions.</p> <p>At the C/D/E level, use advanced number concepts such as comparing fractions, using operations with rational numbers and exponents.</p>

Number Sense (M1.1.12, Use fractions and their decimal equivalents...)

Gina is working as a cashier and the state sales tax rate is 7.25%. How much is the tax for a purchase of \$8.50?

- A. 6¢
- B. 7¢
- C. 62¢**
- D. 75¢

(Answer: C)

Number Sense (M1.3.16, Use exponential notation to indicate repeated multiplication...)

Franco's customer is buying a rug that measures 8 feet by 8 feet. The cost is determined by the square foot. How will he compute the number of square feet?

A. $8 \div 8$

B. $\sqrt{8}$

C. 8^2

D. $8 + 8$

(Answer: C)

CASAS Content Domain	CASAS Level* A/B	CASAS Level* C/D/E	College and Career Readiness Standards Included in CASAS Math Goals Series
M2: Algebra	16%	29%	<p>At the A/B level, understand and reason with properties of four operations, explain patterns in four operations, solve basic one-variable equations.</p> <p>At the C/D/E level, generate equivalent equations and those with two or more variables, understand radicals, use lines and linear equations, use functions and functional expression, including inequalities, polynomials, quadratics, and exponential models.</p>

Algebra (M2.2.8, Solve simple one-step equations with unknowns.)

The original plans for banners showed the width to be 4 feet. The customer now wants all banners to be 9 feet wide.

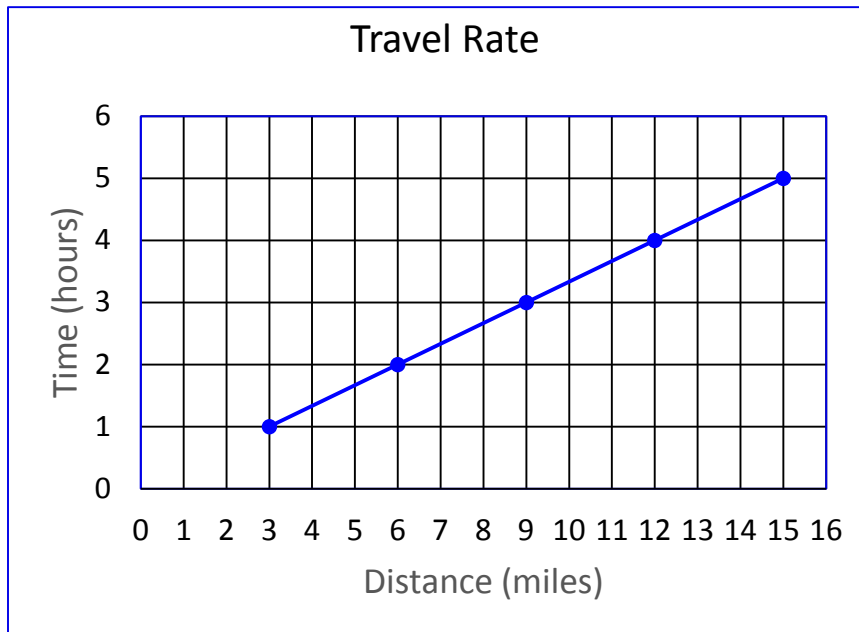
If X is the amount to add to the width and $4 + X = 9$, how much should be added to the width?

- A. 2 feet
- B. 5 feet**
- C. 9 feet
- D. 13 feet

(Answer: B)

Algebra, (M2.3.10, Write the equation of a line given 2 points....)

Which equation (A-D) represents the slope (m) of the line in the Travel Rate graph?



$$\text{A. } m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\text{B. } m = \frac{x_2 - x_1}{y_2 - y_1}$$

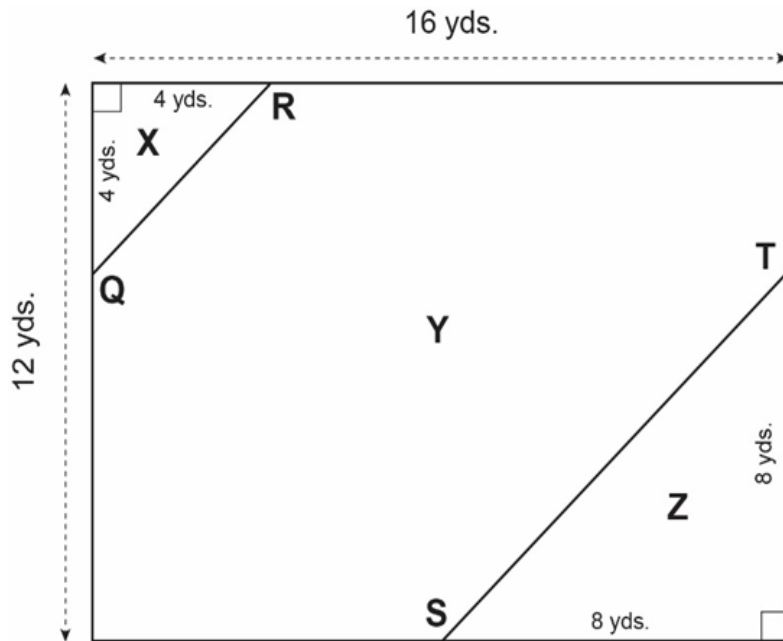
$$\text{C. } m = (y_2 - y_1) - (x_2 - x_1)$$

$$\text{D. } m = (y_2 - y_1) + (x_2 - x_1)$$

(Answer: A)

CASAS Content Domain	CASAS Level* A/B	CASAS Level* C/D/E	College and Career Readiness Standards Included in CASAS Math GOALS Series
M3: Geometry	10%	11%	<p>At the A/B level, identify and reason with shapes and their attributes in 2- and 3-dimensions, find area and volume.</p> <p>At the C/D/E level, solve problems of angle, area, congruence, similarity, trigonometry, volumes of cone, pyramids and spheres.</p>

Geometry (M3.2.1, Identify parallel, perpendicular, and intersecting lines)



Which best describes *Line QR* and *Line ST*?

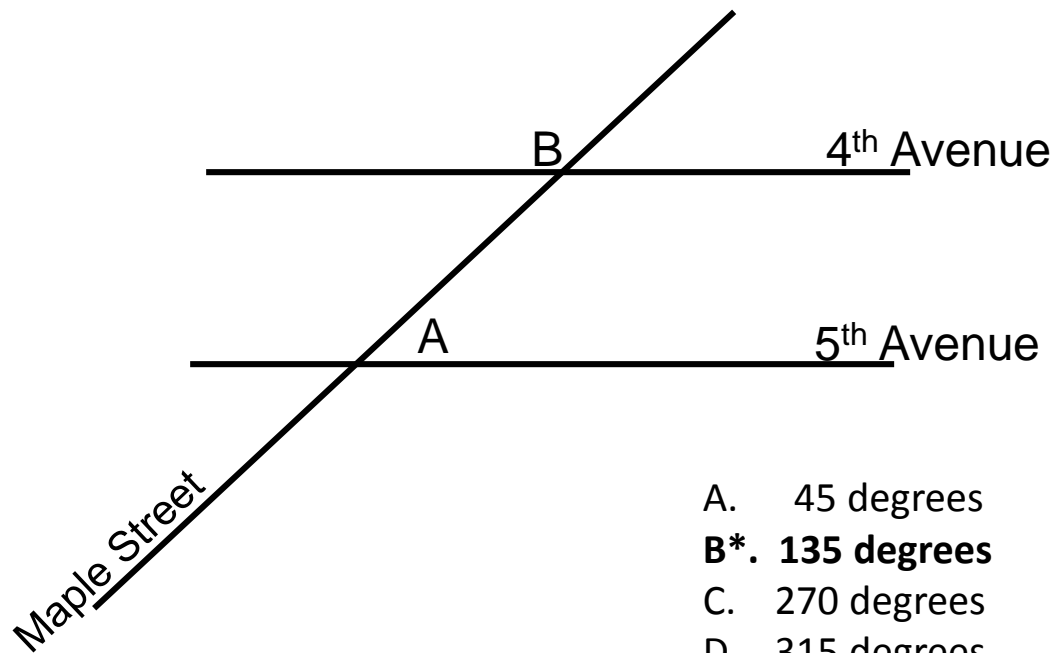
- A. They are equal in length.
- B. They are intersecting lines.
- C.* They are parallel lines.**
- D. They are perpendicular lines.

(Answer: C)

A CALCULATOR IS NOT NEEDED FOR THIS ITEM.

Geometry (M3.2.3: Describe characteristics of angles formed by a transversal intersecting parallel lines.)

The city engineer's plans show that Maple Street intersects 4th and 5th Avenues at a 45 degree angle (A). What is the measure of angle B?



- A. 45 degrees
- B*. 135 degrees**
- C. 270 degrees
- D. 315 degrees

(Answer: B)

CASAS Content Domain	CASAS Level* A/B	CASAS Level* C/D/E	College and Career Readiness Standards Included in CASAS Math Goals Series
M4: Measurement**	29%	24%	<p>At the A/B level, measure with standard units, time intervals, liquid masses and volumes, area, unit conversions, angle measurements.</p> <p>At the C/D/E level, understand/apply Pythagorean theorem, use volume measurements for complex modeling.</p>

** CCRS combines content areas *M4: Measurement* and *M5: Statistics* into one content domain: *Measurement and Data*.

Measurement (M4.2.1, Calculate with and convert between customary US units of linear measurement).

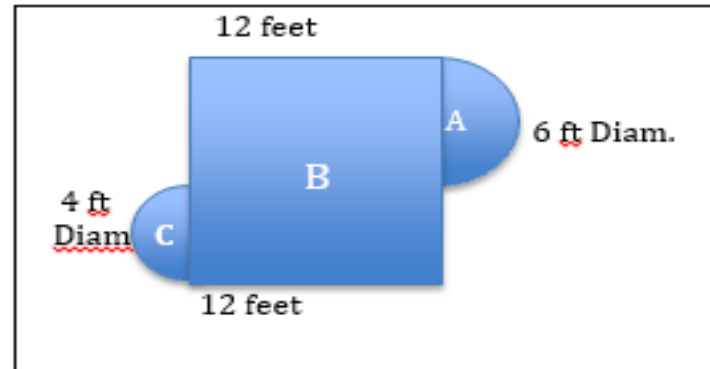
The perimeter of Bernardo's garden is 144 inches. The decorative edging he wants to use to enclose it is sold by the whole foot only. How much edging should he order so that no edging is left over?

- A. 8 feet
- B. 10 feet
- C. 12 feet**
- D. 14 feet

(Answer: C)

Measurement (M4.3.4, Calculate area of rectangles and other common figures, using a given formula)

Measurement (M4.3.7, Calculate area or volume of irregular or composite shapes by dividing the figure into parts)



How much gravel must be ordered to cover the entire rock garden shown?

$$[A = \pi r^2; \pi \approx 3.14]$$

- A. 328.81 ft
- B. 164.41 ft
- C. 328.81 sq ft
- D. 164.41 sq ft**

A CALCULATOR WILL BE PROVIDED / ALLOWED

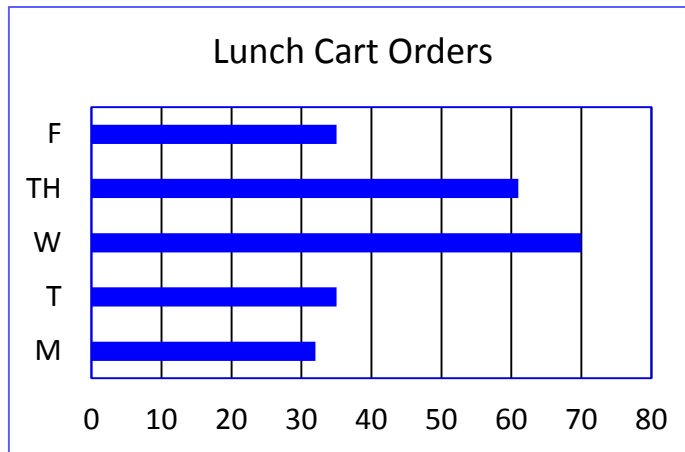
(Answer: D)

CASAS Content Domain	CASAS Level* A/B	CASAS Level* C/D/E	College and Career Readiness Standards Included in CASAS Math Goals Series
M5: Statistics and Probability**	24%	16%	<p>At the A/B level, understand categories, identify relevant data in tables, represent data in graphs, understand variability, and describe distributions.</p> <p>At the C/D/E level, understand probability, sampling, draw inferences, summarize and interpret data categorical and quantitative data, draw inferences, investigate associations in bivariate data.</p>

** CCRS combines content areas *M4: Measurement* and *M5: Statistics* into **one content domain**: *Measurement and Data*.

Level A/B, Statistics (M5.1.1, ...extract relevant data in lists, tables, and charts.)

This is a simple statistics item...requires only that information be read from chart.



According to the graph, about how many people ate at *The Lunch Cart* on Tuesday?

- A. 6
- B. 30
- C. 35**
- D. 60

(answer: C)

LEVEL C/D/E, Statistics (M5.2.3, Find summary statistics of a data set...and determine how extreme values affect each of them.)

This is more difficult; it tests the concept of data distribution...student must understand the effects that extreme data have on measures of central tendency. No data or calculations are needed to respond correctly.

Elise's boss asked her to prepare a report of monthly sales over a 2-year period. Realizing that sales in some months could have been unduly influenced by seasonal events, which statistic should she graph to give the most accurate view of monthly sales?

- A. the total sales for each of the 24 months
- B. the mean (average) sales for each of the 24 months
- C. the total sales for each year
- D. the median sales for each of the 24 months**

(Answer: D)

Applications: A New Idea??

- Realizing the importance of math concepts to practical applications is not a new idea!



Allegory of Geometry (1649), by Laurent de La Hyre (1606–1656)

<http://legionofhonor.famsf.org/legion/announcements/french-classical-masterpiece>

Detail of painting

- The paper in her hand is inscribed with Euclidean mathematical proofs; she holds a compass and right angle; various elements in the picture show practical applications of the science: on the easel is a landscape painting utilizing linear perspective, a globe that refers to mapmaking, and examples of architecture.



REFERENCES

U.S. Department of Education, Office of Vocational and Adult Education. *College and Career Readiness Standards for Adult Education*. Washington, D.C., 2013. (Pimentel)

<http://lincs.ed.gov/publications/pdf/CCRStandardsAdultEd.pdf>

U.S. Department of Education, Office of Vocational and Adult Education. *Implementation Guidelines: Measures and Methods for NRS for Adult Education*. Washington, D.C., 2016.

<http://www.nrsweb.org/docs/ImplementationGuidelines.pdf>

Field Testing Update

- Item field testing and many research studies for the new Reading and Math series in CASAS eTests Online and on paper have been completed.
 - More than 200,000 adult students nationwide have participated!
 - Feedback from students and programs has guided test development.

- Many thanks to all programs that joined the CASAS Field Testing Team!
 - Participating field test sites are listed in the folder.

- Beginning Literacy Level field testing for ELLs
- New CASAS Listening series item field testing!
- Test Development Research studies for ELL
Reading and Listening



Field Test Studies for new Math GOALS series:

1. For students in ABE/HSE/HSD, and ESL students at high intermediate and advanced levels:

- Math Parallel Final Forms Study
- Paper vs. Electronic (eTests on the web) Study
- HiSET/CASAS Study

2. For ABE/HSE/HSD Teachers:

- Math Teacher Feedback Study

Interested??

Stop by the Field Test information table, Royal Ballroom foyer, (enter the raffle!) or see the “CASAS Field Testing Update” handout for details.



Field Testing Opportunities

Learn about the benefits of field-testing and discover how you can be a part of CASAS test development through participating in our assessment research studies.

Tuesday, June 13
Wednesday, June 14
8:30 am – 4:00 pm
Royal Ballroom Foyer



Stop by the field-testing table at the Royal Ballroom Foyer
and earn an entry in a raffle for fun prizes.

Winners will be announced at 6:00 p.m. during the Wednesday evening Social and must be present to win.




To participate in CASAS field testing and research studies, send an email to: fieldtesting@casas.org

Or contact:

- Karen Burger (kburger@casas.org)
- Kay Hartley (khartley@casas.org)

*Many, many thanks to
Berenice Weber and
Indaiá Santos-Keith
for assistance!!*

Thank You for Attending!

- Be sure to visit the CASAS website at www.casas.org
- Follow us on Twitter  twitter.com/CASASsystem and use the hashtag [#casassi2017](https://twitter.com/hashtag/casassi2017) to tweet updates, photos, and stories.
- Keep in touch with Facebook  facebook.com/CASASsystem use the hashtag [#casassi2017](https://facebook.com/hashtag/casassi2017) to share photos and post stories.
- Visit us on the  [YouTube Channel](#)

MATH -- EXTRA SLIDES

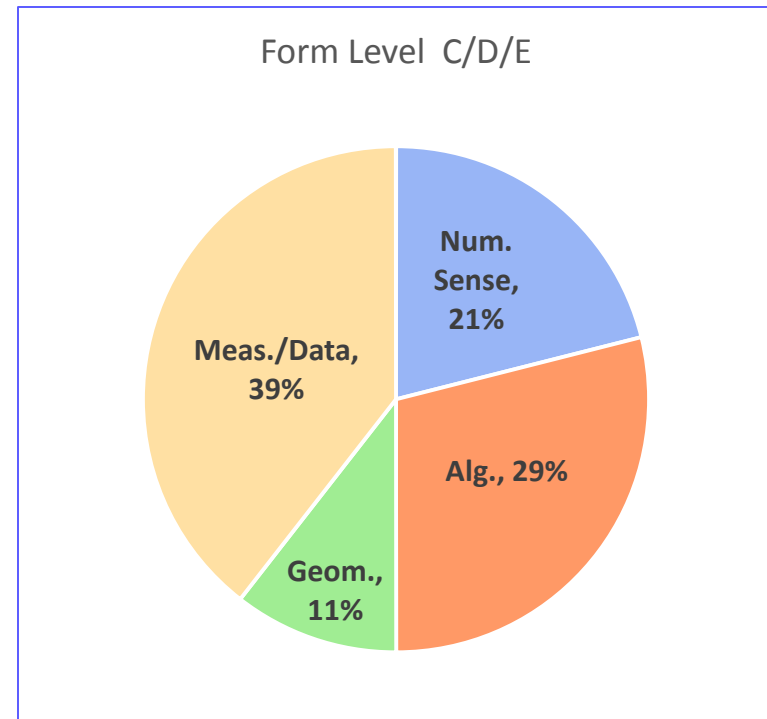
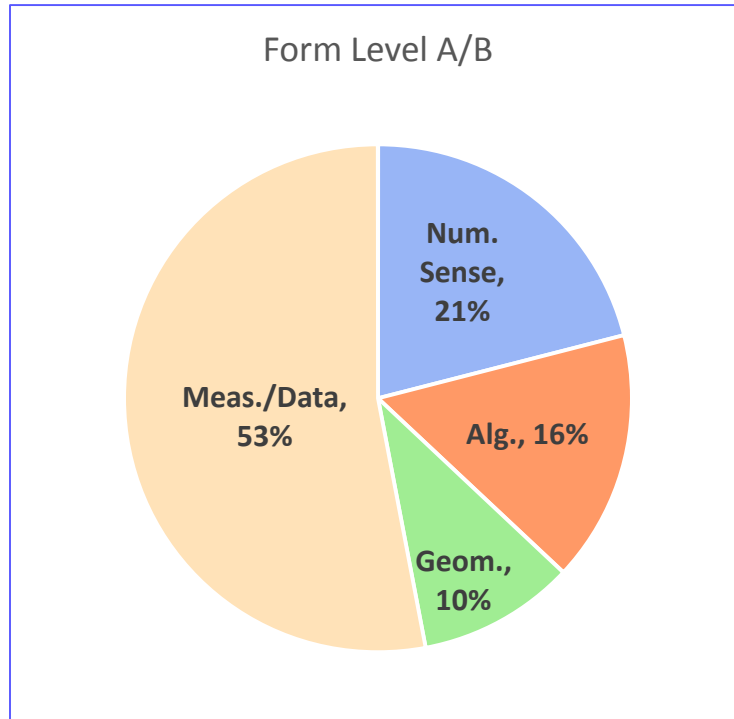
- Test blueprints provided the framework of content areas.
- Experienced item writers prepared items consistent with situations that adults are likely to face on the job and in everyday activities.
- Items (text and illustrations) were reviewed by SMEs (internal and external) as to the difficulty LEVEL, CONTENT, and the STANDARD/S addressed (both the current CCRS and the upcoming NRS).
- Items were also reviewed for cultural FAIRNESS + SENSITIVITY.
- Items were edited as needed.
- Field tests were conducted with paper and computer forms.
- Item data were reviewed utilizing statistical analyses of item FT performance.
- Further editing/review was performed if necessary.
- Number of items/form is based on Field Test completion time data.
- Items were adopted as a final item (and added to our computer data base) ONLY after all reviews and statistical analyses were deemed adequate.

NRS LEVEL	RIT RANGE
1	≤ 195
2	196-204
3	205 - 216
4	217 - 225
5	226 - 234
6	≥ 235

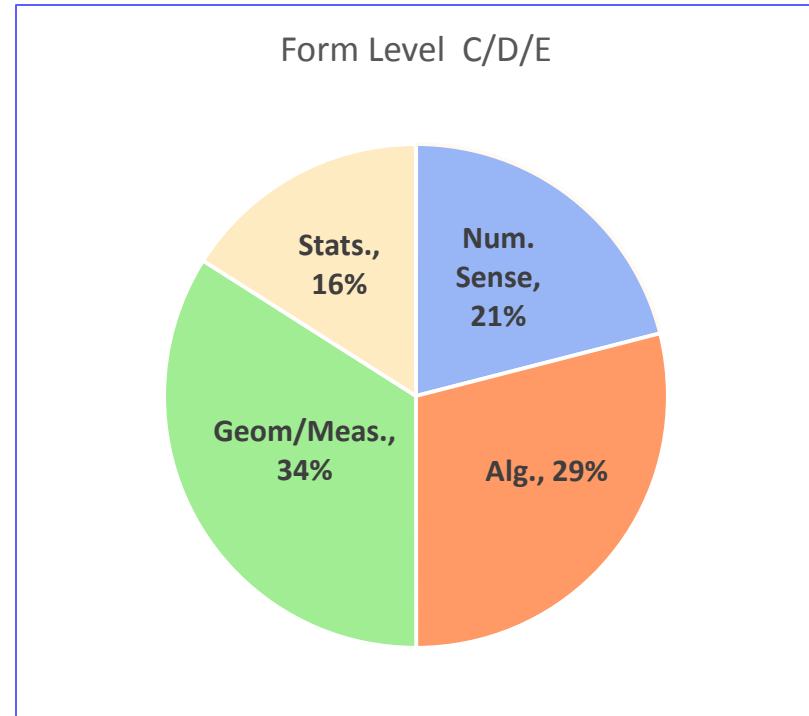
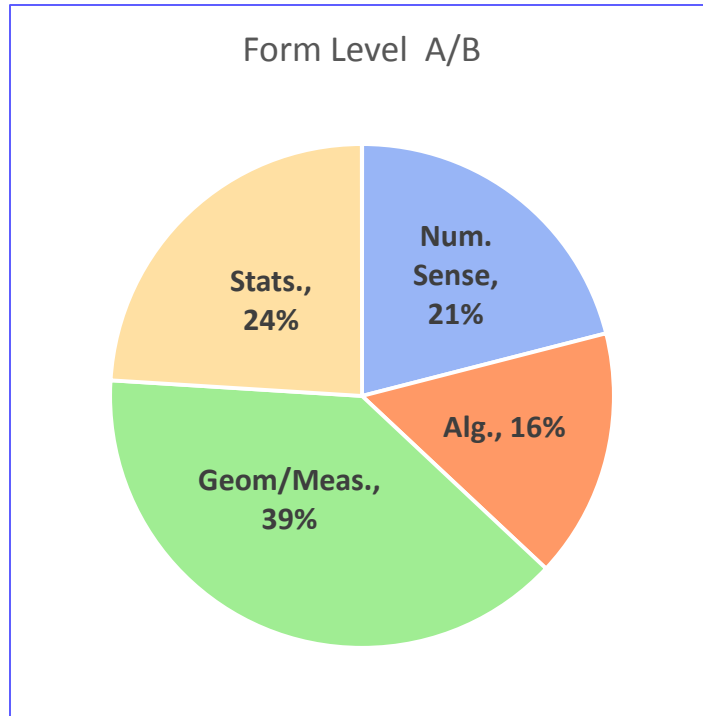
MEASURES OF TEXT READABILITY IN CASAS MATH GOALS ITEMS						
	LEXILE RANGES				FLEISCH-KINCADE RANGES	
CASAS TEST LEVEL	LEXILE Grade	LEXILE	Mean Sent. Length	Word Count	F-K Reading Ease	F-K Grade
A/B	3-4 to 8-10	170 - 990	7 - 12	14 - 49	49.4 - 90.1	3.8 - 8.3
C/D/E	2-3 to 8-12	330 - 1110	7 - 14.3	7 - 86	47.8 - 75.4	5.2 - 10.5

NRS EFL Descriptors (February 2016)

- provide examples of the most critical concepts and skills to guide assessment and instruction at a particular level
- do not provide a complete or comprehensive delineation of all of the skills at that level
- are organized in terms of skills needed to exit a particular level
- represent, within each level, abilities are described across 5 CASAS domain categories:
 1. *Mathematical Practices*
 2. *Number Sense and Operations*
 3. *Algebraic Thinking*
 4. *Geometry and Measurement*
 5. *Data Analysis, Statistics and Probability*



* CCRS combines CASAS content areas *M4: Measurement* and *M5: Statistics* into one content domain: *Measurement and Data*.



** NRS EFLs combines CASAS content areas *M3 Geometry* and *M4: Measurement* into one content domain: *Geometry and Measurement*.

Math GOALS Series Blueprint					
CASAS Content Domains		GOALS A/B Form		GOALS C/D/E Form	
		% CCRS*	% NRS**	% CCRS*	% NRS**
Mathematical Content (CASAS)	Number Sense	21	21	21	21
	Algebraic Thinking	16	16	29	29
	Geometry	10	39	11	34
	Measurement	53		39	
	Statistics/Data		24		16
Mathematical Practices (NRS)	Math Practices extends across all domains; students should be able to understand problems and persevere in solving them, reason abstractly and quantitatively, use critical thinking and modeling, use appropriate tools, be precise and structured, and express reasoning.				

*CCRS: combines Measurement and Data into one domain.

**NRS: combines Geometry and Measurement into one domain

CASAS DOMAIN	MATH GOALS FORM A/B			MATH GOALS FORM C/D/E		
	CASAS%	CCRS%*	NRS%**	CASAS%	CCRS%*	NRS%**
M1: NSO	21	21	21	21	21	21
M2: ALG	16	16	16	29	29	29
M3: GEO	10	10	39	11	11	34
M4: MEAS	29	53		24	39	
M5: STATS	24		24	16		16

*CCRS combines CASAS content areas *M4: Measurement* and *M5: Statistics* into one content domain: ***Measurement and Data.***

** NRS combines CASAS content areas *M3 Geometry* and *M4: Measurement* into one content domain: ***Geometry and Measurement.***