CASAS

Comprehensive Adult Student Assessment Systems

CASAS Update and Math GOALS Series Overview

March 2019

Content

- CASAS GOALS series – NRS status
- Test Timing
- Math GOALS Overview
- Test Blueprint
- Sample Test Items
- CASAS Summer Institute

New GOALS series and NRS status

for ABE/ASE

- *Reading GOALS - approved through 2025*
- *Math GOALS for ABE/ASE - approved through 2022*

for ESL

- *Reading GOALS - submitted 2018 – pending approval*
- *Listening GOALS - will submit in 2019*

Reading and Math Test Timing

Intake

- Short Locator (for each modality) --15 minutes – eTests only
- Appraisal -- 30 minutes -- Paper (and eTests)

Pre- and posttests

- **Reading GOALS for ABE/ASE**
  - 75 minutes each (60 minutes for Level A)
- **Math GOALS**
  - 60 minutes for Level A/B; 75 minutes for Level C/D

Post-testing

- Administer post-test(s) after 70 -100 hours of instruction but no less than 40 hours

➡ **It takes 2.5 – 3 hours to test in two modalities,**

Math GOALS Series

New Math GOALS Features:

GOALS CASAS Math Series

Two forms at each level:

A/B Level (40 items each form)
C/D Level (38 items each form)

Basic calculators are provided - online and/or by the site

A range of item types is provided, including:

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

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

Math Series GOALS CASAS

- ***Overview: Math GOALS Series was built to account for*:**
  - **CASAS Competencies** –
    - provides the context for assessing skills used in academic and employment settings, as well as everyday life-skills
  - **Content Standards**
    - CASAS Math Standards
    - CCR Standards for Adult Education
      - Number Sense
      - Algebra
      - Geometry and Geometric Measurement
      - Data, Probability, Statistical Measurement
      - Mathematical Practices
  - **NRS Educational Functioning Level (EFL) Descriptors for Math**

Math GOALS items by CASAS Competency Areas

CASAS Competency areas:	A/B Forms	C/D Forms
1) Consumer Economics	31%	36%
2) Community Resources	20%	9%
3) Health	3%	
4) Employment	34%	47%
5) Government		1%
7) Learning +Thinking	13%	7%

CCR Standards Are Focused On:

GOALS CASAS Math Series

- 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*

CASAS and CCR Math Standards

CASAS Math Content Areas	CCR Standards*
M1: Number Sense	**Number and Ratio**
M2: Algebra	**Algebra and Functions**
M3: Geometry	**Geometry**
M4: Measurement	**Data, Probability and Statistical Measurement**
M5: Statistics, Data Analysis, Probability	

* CCRS domains of **Geometry** and **Statistics** include content from CASAS category *M4: Measurement*

NRS EFL Descriptors (February 2016)

GOALS CASAS Math Series

- **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 across:**
  - *Mathematical Practices (overarching category)*
  - *Number Sense and Operations*
  - *Algebraic Thinking*
  - *Geometry and Measurement*
  - *Data Analysis, Statistics and Probability*

EFLs by Math GOALS

GOALS CASAS Math Series

NRS EFL Level	NRS EFL for Mathematics	A/B Forms	C/D Forms
1	Beginning Literacy	Enter & Complete	
2	Beginning Basic	Enter & Complete	
3	Low Intermediate	Enter & Complete	
4	Middle Intermediate	*Entry into Level 4*	Enter & Complete
5	High Intermediate		Enter & Complete
6	Adult Secondary		*Entry into Level 6*

Old to New NRS EFLs and Scale Score Ranges

NRS EFL	Old ABE/ASE EFLs	Life & Work Math Scale Score Ranges
1	Beginning Literacy	200 & below
2	Beginning Basic	201 - 210
3	Low Intermediate	211 - 220
4	High Intermediate	221 - 235
5	Low Adult Secondary	236 - 245
6	High Adult Secondary	246 & above

NRS EFL	New ABE/ASE EFLs for Mathematics	Math GOALS Scale Score Ranges
1	Beginning Literacy	193 & below
2	Beginning Basic	194 - 203
3	Low Intermediate	204 - 214
4	Middle Intermediate	215 - 225
5	High Intermediate	226 - 235
6	Adult Secondary	236 & above

CASAS Math Blueprint

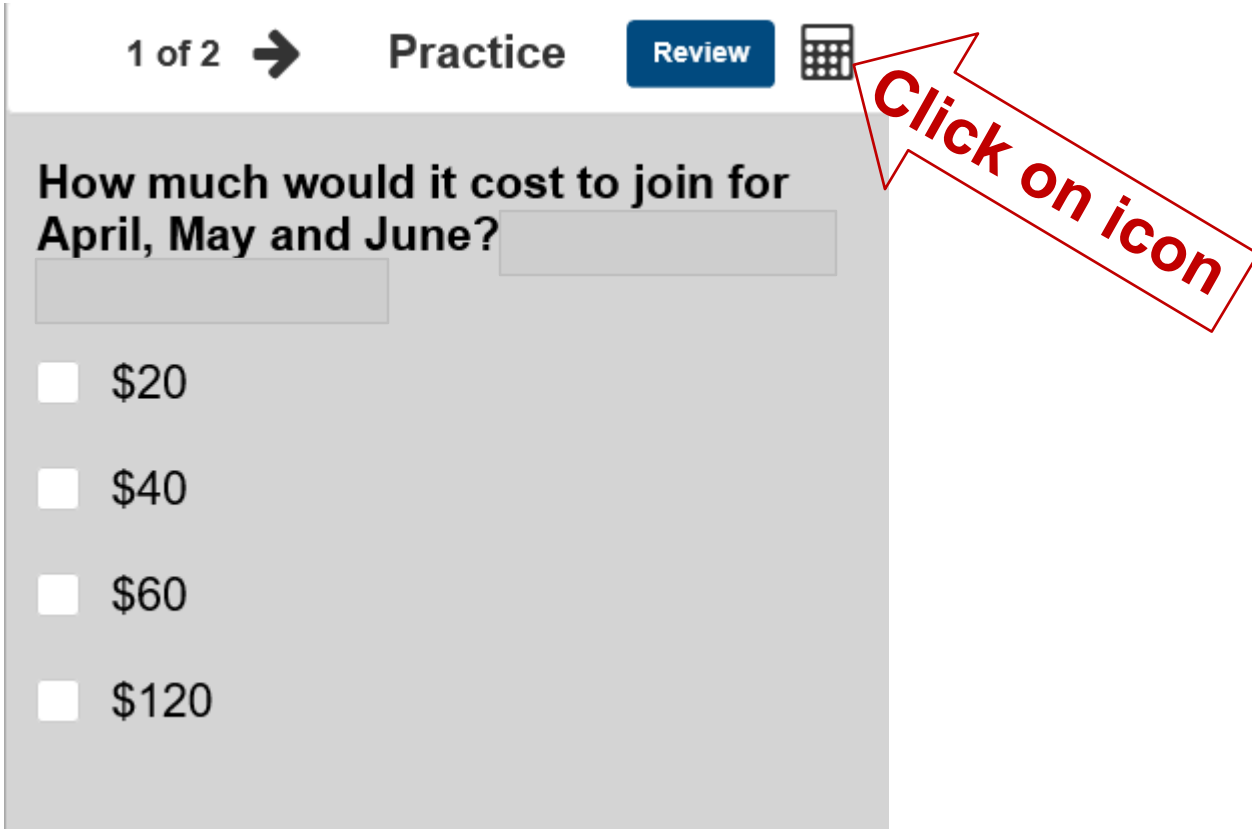
GOALS CASAS Math Series

CASAS Content Domains	CASAS Level A/B	CASAS Level C/D	College and Career Readiness Standards (CCRS) Covered by CASAS Math Goals Series
M1: Number Sense	31%	17%	**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. **At the C/D level**, use advanced number concepts such as comparing fractions, using operations with rational numbers and exponents.
M2: Algebra	11%	29%	**At the A/B level,** understand and reason with properties of four operations, explain patterns in four operations, solve basic one-variable equations. **At the C/D 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.
M3: Geometry	9%	12%	**At the A/B level,** identify and reason with shapes and their attributes in 2- and 3-dimensions, find area and volume. **At the C/D level**, solve problems of angle, area, congruence, similarity, trigonometry, volumes of cone, pyramids and spheres.
M4: Measurement*	31%	25%	**At the A/B level,** measure with standard units, time intervals, liquid masses and volumes, area, unit conversions, angle measurements. **At the C/D level,** understand/apply Pythagorean theorem, use volume measurements for complex modeling.
M5: Statistics and Probability**	18%	17%	**At the A/B level,** understand categories, identify relevant data in tables, represent data in graphs, understand variability, and describe distributions. **At the C/D level,** understand probability, sampling, draw inferences, summarize and interpret data categorical and quantitative data, draw inferences, investigate associations in bivariate data.

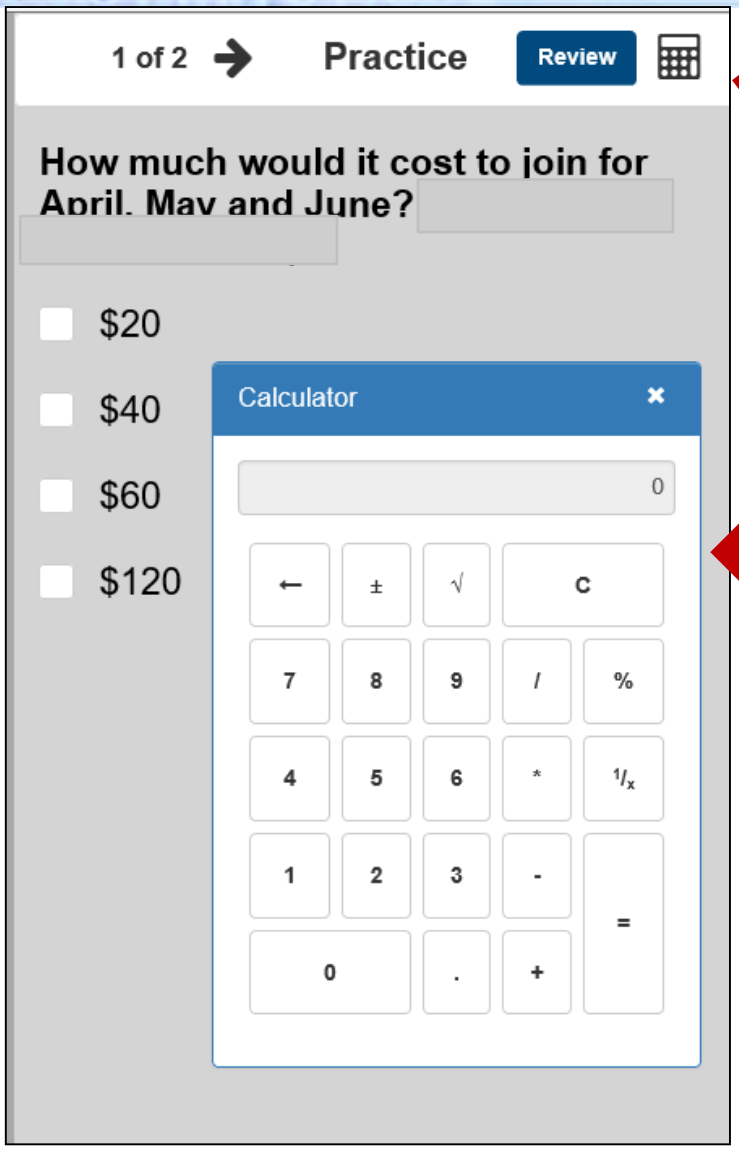
* CCRS domains of **Geometry** and **Statistics** include content from CASAS category *M4: Measurement*

On-screen calculator in CASAS eTests

Midtown Gym costs $40 per month to join but is having a half-price special for August.



On-screen calculator in CASAS eTests



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

Includes only basic functions.

Sample Items Across Domains and Levels

Domain: Number Sense

CASAS Content Domain	CASAS Level A/B	CASAS Level C/D	College and Career Readiness Standards Included in CASAS Math Goals Series
M1: Number Sense	29%	16%	**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. **At the C/D level**, use advanced number concepts such as comparing fractions, using operations with rational numbers and exponents.

Number Sense

CASAS Math Standard: 1.3.6

Gina is buying a shirt that costs $10.00. The sales tax is 7.5%.

How much will the tax be?

A. $0.07

B. $0.13

C. $0.75

D. $1.30

Number Sense

CASAS Math Standard: 1.4.2

Franco is buying nails for a construction project. Each box of nails costs $14 and contains 225 nails. Franco estimates that he needs 1,800 nails.

How can Franco calculate the total cost of the nails?

A. $\frac{14}{225} = \frac{x}{1800}$

B. $\frac{14}{1800} = \frac{x}{225}$

C. $\frac{1800}{225} = \frac{14}{x}$

D. $\frac{1800}{x} = \frac{14}{225}$

Domain: Algebra

CASAS Content Domain	CASAS Level A/B	CASAS Level C/D	College and Career Readiness Standards Included in CASAS Math Goals Series
M2: Algebra	14%	30%	**At the A/B level,** understand and reason with properties of four operations, explain patterns in four operations, solve basic one-variable equations. **At the C/D 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.

Algebra

CASAS Math Standard: 2.2.8

Jackson Elementary will have 120 first grade students next year. Each class can have 24 students.

Using the equation 24x = 120, how many first grade classes will the school need?

A. 4

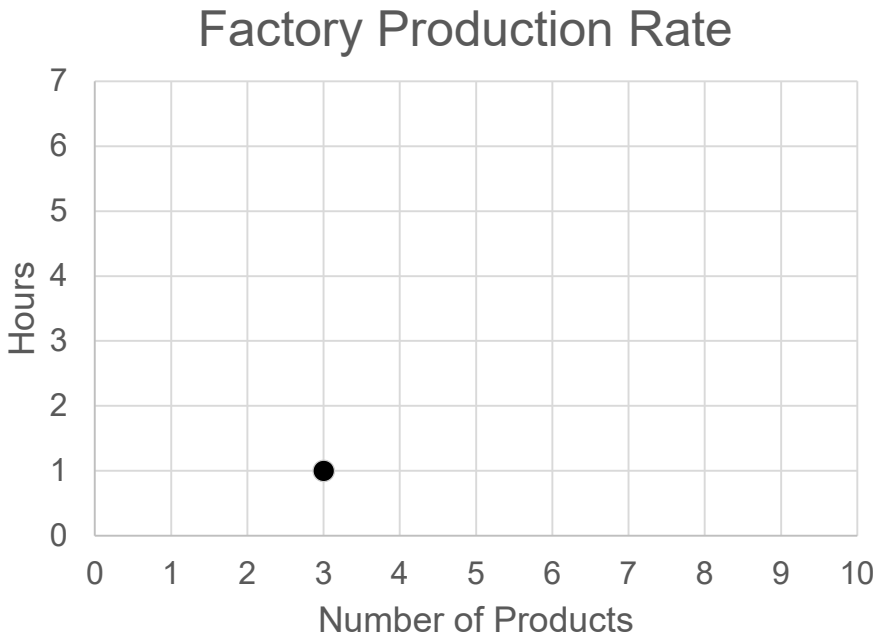
B. 5

C. 6

D. 7

Algebra

CASAS Math Standard: 2.3.10



Equation of a line: y = mx + b

m = slope, b = y-intercept

James is going to plot a line using the information in the chart. What is the equation of the line if the slope is $\frac{1}{3}$?

A. $y = \frac{1}{3}x + 0$

B. $y = 3x + 1$

C. $y = \frac{1}{3}x + 1$

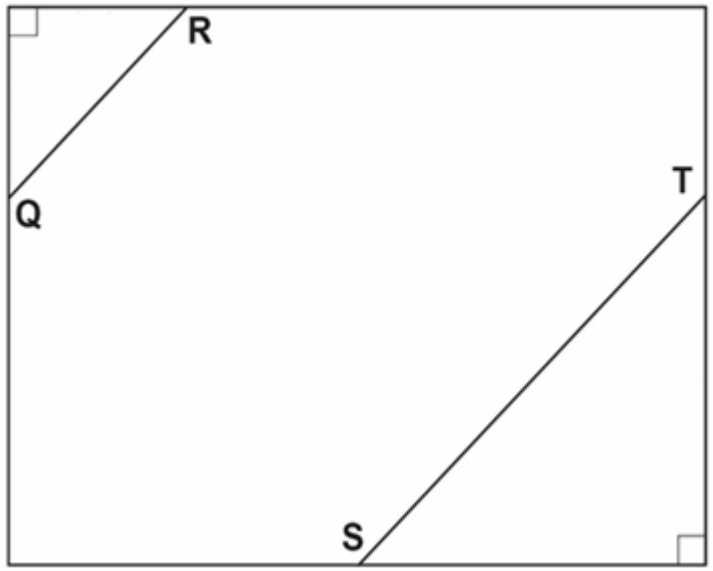
D. $y = 3x + 0$

Domain: Geometry

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

Geometry

CASAS Math Standard: 3.2.1

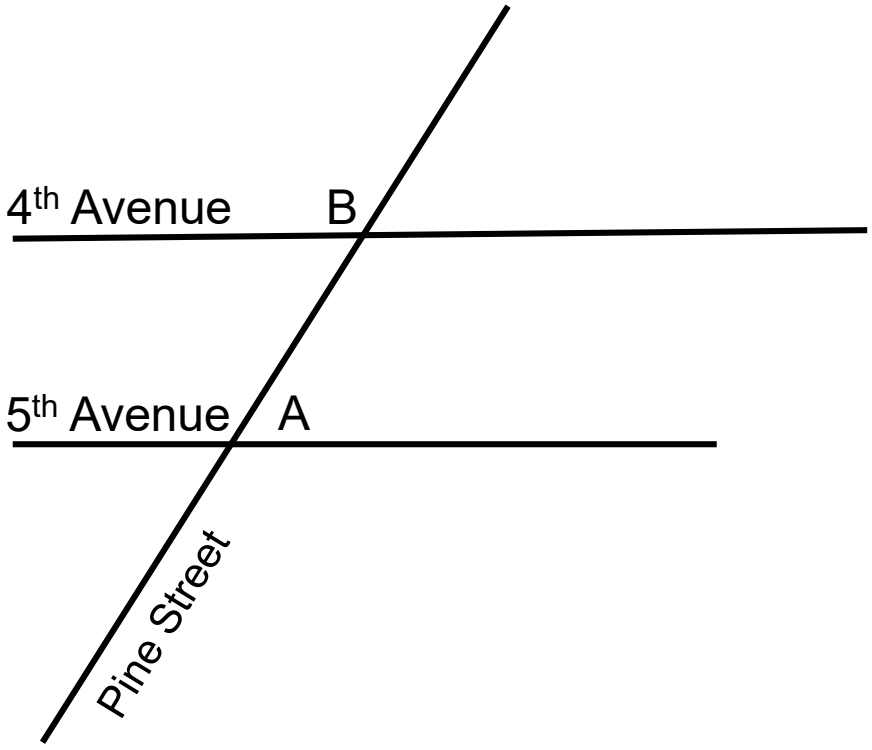


Which best describes *Line QR* and *Line ST*?

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

Geometry

CASAS Math Standard: 3.2.3



Angle A, at the intersection of Pine Street and 5th Avenue, is 60 degrees. What is the measure of angle B?

A. 60 degrees
B. 90 degrees
C. 120 degrees
D. 180 degrees

Domain: Measurement

CASAS Content Domain	CASAS Level A/B	CASAS Level C/D	College and Career Readiness Standards Included in CASAS Math Goals Series
M4: Measurement*	30%	28%	**At the A/B level,** measure with standard units, time intervals, liquid masses and volumes, area, unit conversions, angle measurements. **At the C/D level,** understand/apply Pythagorean theorem, use volume measurements for complex modeling.

Measurement

CASAS Math Standard: 4.2.1

1 foot = 12 inches

A piece of string is 144 inches long. How many feet is the string?

A. 8 feet

B. 10 feet

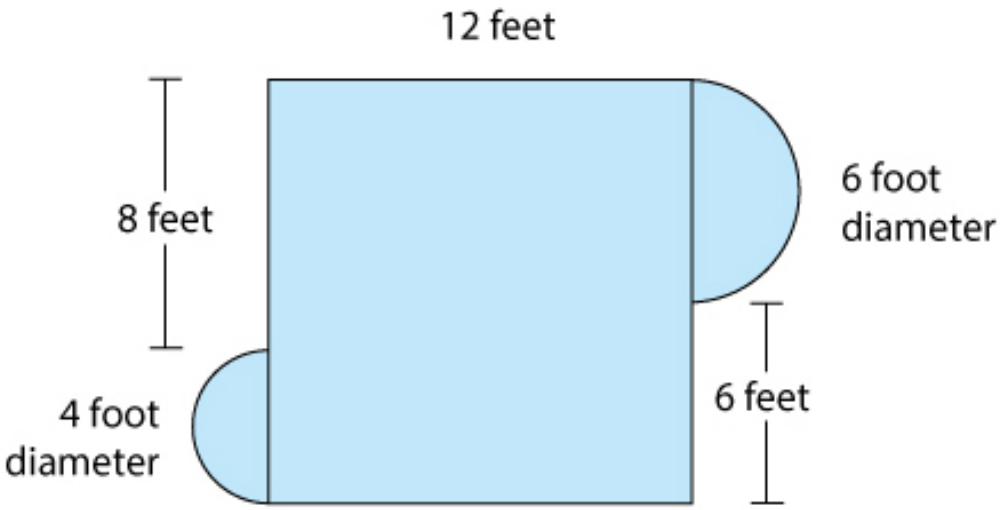
C. 12 feet

D. 14 feet

Measurement

CASAS Math Standard: 4.3.7

Jeremy's Patio



(A = πr^2; $\pi \approx 3.14$)

What is the approximate area of Jeremy's patio?

A. 160

B. 164

C. 184

D. 308

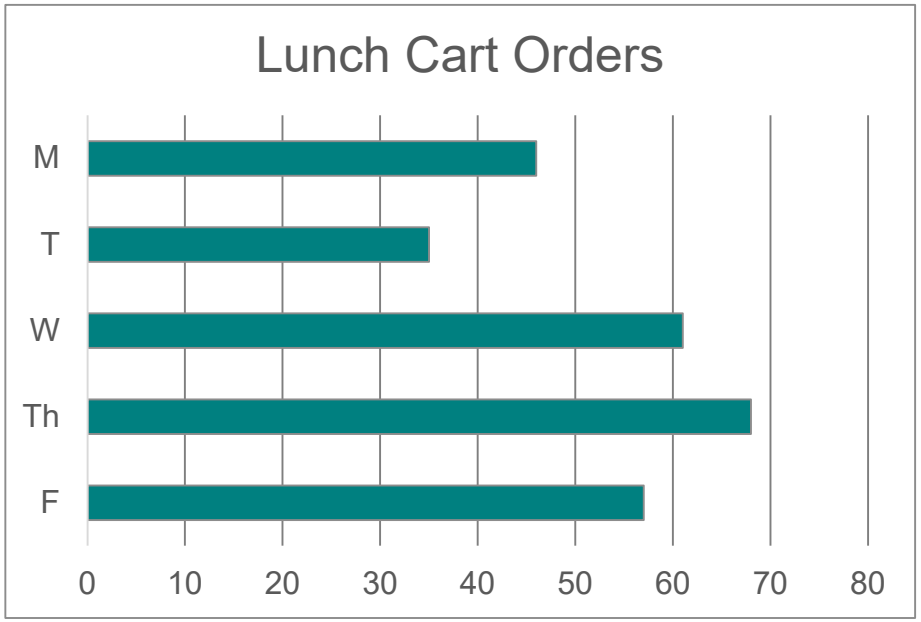
Domain: Statistics and Probability

** 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	College and Career Readiness Standards Included in CASAS Math Goals Series
M5: Statistics and Probability*	18%	16%	**At the A/B level,** understand categories, identify relevant data in tables, represent data in graphs, understand variability, and describe distributions. **At the C/D level,** understand probability, sampling, draw inferences, summarize and interpret data categorical and quantitative data, draw inferences, investigate associations in bivariate data.

Statistics

CASAS Math Standard: 5.1.1



According to the graph, about how many people ordered from the lunch cart on Tuesday?

A. 35

B. 45

C. 60

D. 70

Statistics

CASAS Math Standard: 5.3.3

Celia rides the downtown trolley three times every day. There are five trolleys that run on the loop downtown.

What is the probability that Celia will ride the #2 trolley on all three trips today?

A. 3/25

B. 1/15

C. 3/5

D. 1/125

CASAS/HSE Studies

- **CASAS is conducting cooperative studies with GED Testing Service and ETS HiSET**
  - Will provide programs with information about an adult learner's performance on CASAS reading and math assessments and their readiness to take either the GED or the HiSET

- **States and local programs interested in being a part of this study should contact CASAS**
  - To participate in CASAS field testing and research studies, send an email to: fieldtesting@casas.org

Join us at the 2019 CASAS Summer Institute

When?

- National Consortium and Certified Trainer Meeting on Monday, June 10
- Training and Workshops: June 11 - 13, 2019

Where?

- Hyatt Regency, Orange County, CA