



Our Students. Their Moment.

**New York State Testing Program
Grade 7 Common Core
Mathematics Test**

Released Questions

July 2015



THE STATE EDUCATION DEPARTMENT / THE UNIVERSITY OF THE STATE OF NEW YORK /
ALBANY, NY 12234

New York State Testing Program Grade 7 Common Core Mathematics Test

Released Questions

With the adoption of the New York P-12 Common Core Learning Standards (CCLS) in ELA/Literacy and Mathematics, the Board of Regents signaled a shift in both instruction and assessment. Starting in Spring 2013, New York State began administering tests designed to assess student performance in accordance with the instructional shifts and the rigor demanded by the Common Core State Standards (CCSS). To aid in the transition to new assessments, New York State has released a number of resources, including test blueprints and specifications, sample questions, and criteria for writing assessment questions. These resources can be found at <http://www.engageny.org/common-core-assessments>.

New York State administered the ELA/Literacy and Mathematics Common Core tests in April 2015 and is now making a portion of the questions from those tests available for review and use. These released questions will help students, families, educators, and the public better understand how tests have changed to assess the instructional shifts demanded by the Common Core and to assess the rigor required to ensure that all students are on track to college and career readiness.

Released Questions Are Teaching Tools

The released questions are intended to help educators, students, families, and the public understand how the Common Core is different. The questions demonstrate the way the Common Core should drive instruction and how tests have changed to better assess student performance in accordance with the instructional shifts demanded by the Common Core. They are also intended to help educators identify how the rigor of the State tests can inform classroom instruction and local assessment.

Understanding Math Questions

Multiple Choice

Multiple-choice questions are designed to assess CCLS for Mathematics. Mathematics multiple-choice questions will mainly be used to assess standard algorithms and conceptual standards. Multiple-choice questions incorporate both Standards and Standards for Mathematical Practices, some in real-world applications. Many multiple-choice questions require students to complete multiple steps. Likewise, many of these questions are linked to more than one standard, drawing on the simultaneous application of multiple skills and concepts. Within answer choices, distractors will all be based on plausible missteps.

Short and extended constructed-response questions may refer to the scoring rubric, which can be found in the Educator Guide to the 2015 Grade 7 Common Core Mathematics Test at <http://www.engageny.org/resource/test-guides-for-english-language-arts-and-mathematics>.

Short Response

Short-response questions require students to complete a task and show their work. Like multiple-choice questions, short-response questions will often require multiple steps, the application of multiple mathematics

skills, and real-world applications. Many of the short-response questions will cover conceptual and application Standards.

Extended Response

Extended-response questions ask students to show their work in completing two or more tasks or a more extensive problem. Extended-response questions allow students to show their understanding of mathematical procedures, conceptual understanding, and application. Extended-response questions may also assess student reasoning and the ability to critique the arguments of others.

CCLS Alignment

The alignment(s) to the Common Core Learning Standards for Mathematics are intended to identify the primary analytic skills necessary to successfully answer each question. However, some questions measure proficiencies described in multiple standards, including a balanced combination of procedure and conceptual understanding. For example, two-point and three-point constructed-response questions require students to show an understanding of mathematical procedures, concepts, and applications.

Released Questions Do Not Comprise a "Mini" Test

This document is NOT intended to show how operational tests look or to provide information about how teachers should administer the test; rather, the purpose of the released questions is to provide an overview of how the new test reflects the demands of the Common Core.

The released questions do not represent the full spectrum of standards assessed on the State tests, nor do they represent the full spectrum of how the Common Core should be taught and assessed in the classroom. It should not be assumed that a particular standard will be measured with an identical question in future assessments. Specific criteria for writing test questions as well as additional instruction and assessment information is available at <http://www.engageny.org/common-core-assessments>.

One full-credit student response is provided with each released constructed-response question. The example is provided to illustrate one of many ways students can achieve full credit in answering the test question. The sample response is not intended to represent a best response nor does it illustrate the only way a student could earn full credit.

134070402_1

1

Yesterday, the temperature at noon was 11.4°F . By midnight, the temperature had decreased by 15.7 degrees. What was the temperature at midnight?

- A** -4.3°F
- B** -11.4°F
- C** -15.7°F
- D** -27.1°F

Key: A

Primary CCLS: 7.NS,1,d

Apply properties of operations as strategies to add and subtract rational numbers.

Secondary CCLS: 7.NS,1,b

Percentage of Students Statewide Who Answered Correctly: 84%

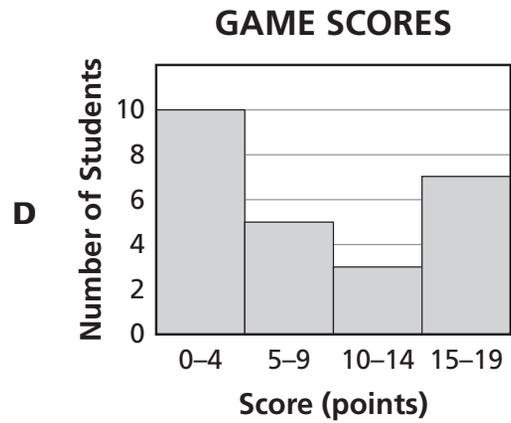
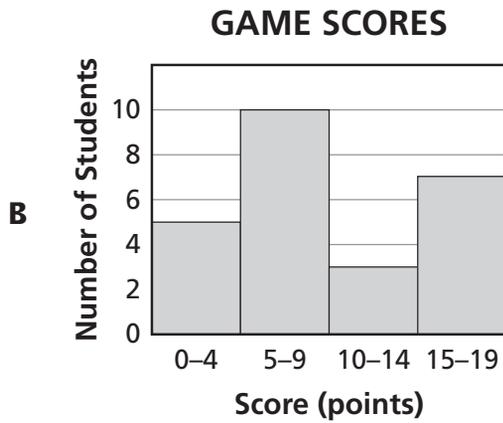
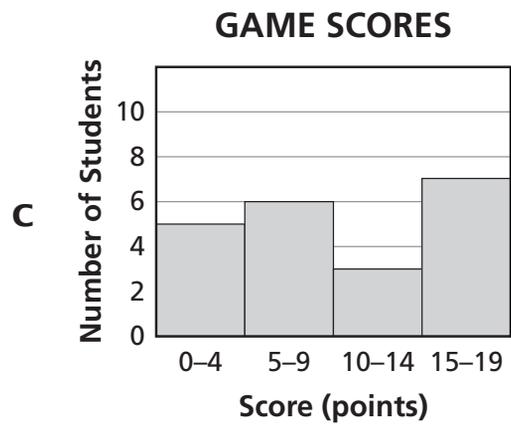
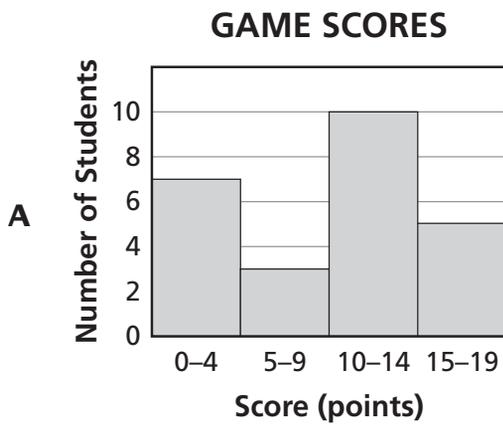
4

Jared surveyed the students in his class to determine how they scored in a game. He displayed his results in the table shown below.

GAME SCORES

Score (points)	Number of Students
0 to 4	5
5 to 9	10
10 to 14	3
15 to 19	7

Which histogram represents the data in the table?



Key: B

Primary CCLS: 6.SP,4

Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 96%

124070014_1

5

Altitude above sea level is given in positive values and below sea level is given in negative values. Which situation describes a hiker in Death Valley stopping at an altitude of 0 feet?

- A** The hiker starts at -10 feet then increases altitude by 10 feet.
- B** The hiker starts at -10 feet then decreases altitude by 10 feet.
- C** The hiker starts at 10 feet then increases altitude by 10 feet.
- D** The hiker starts at 0 feet then decreases altitude by 10 feet.

Key: A

Primary CCLS: 7.NS,1,a

Describe situations in which opposite quantities combine to make 0.

For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 73%

6

A cereal company puts a colored ring in each box of cereal. There are 6 different ring colors. The colors of the rings in each of 50 cereal boxes are shown in the table below.

RING COLORS IN CEREAL BOXES

Color	Number of Rings
Red	7
Blue	15
Green	8
Purple	10
Yellow	5
Orange	5

Based on the data, what is the probability that the next cereal box will contain a blue or a yellow ring?

- A** $\frac{1}{6}$
- B** $\frac{2}{5}$
- C** $\frac{3}{5}$
- D** $\frac{2}{3}$

Key: B

Primary CCLS: 7.SP.7,b

Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.

For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 59%

9

The three steps shown below were used to find an expression equivalent to $\frac{2}{5}(15x - 30y) + 10x$.

Step 1: $\underline{\quad? \quad}$

Step 2: $16x - 12y$

Step 3: $4(4x - 3y)$

Which expression could be used as Step 1?

- A** $\frac{2}{5}(25x - 30y)$
- B** $6x - 12y + 10x$
- C** $6x - 30y + 10x$
- D** $15(x - 2y) + 10x$

Key: B

Primary CCLS: 7.EE.1

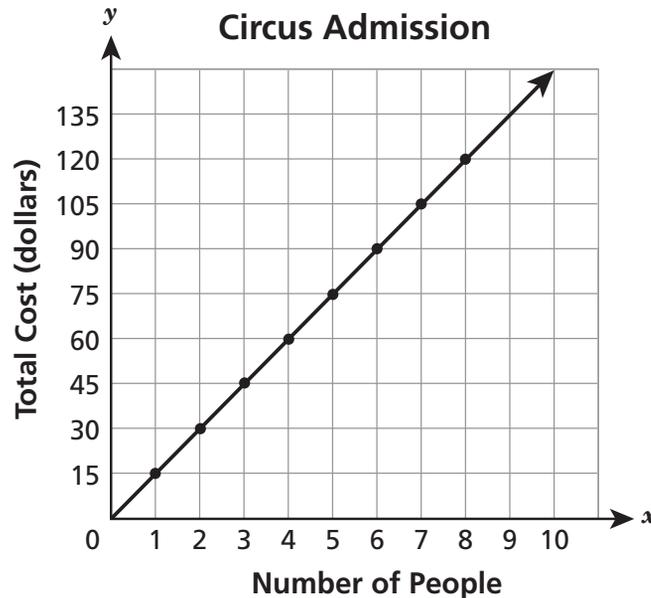
Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 46%

10

The graph below shows the relationship between the number of people in a group and the total cost of admission tickets for a circus.



What point on the graph represents the unit rate?

- A (0, 0)
- B (1, 15)
- C (15, 1)
- D (8, 120)

Key: B

Primary CCLS: 7.RP,2,d

Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 73%

144070040_3

11

Evaluate.

$$\left(-\frac{7}{10} + 0.15\right) \div (-0.125)$$

- A** -6.8
- B** -4.4
- C** 4.4
- D** 6.8

Key: C

Primary CCLS: 7.NS,3

Solve real-world and mathematical problems involving the four operations with rational numbers.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 39%

144070005_2

17

A recipe requires $\frac{1}{3}$ cup of milk for each $\frac{1}{4}$ cup of water. How many cups of water are needed for each cup of milk?

- A** $\frac{1}{12}$
- B** $\frac{3}{4}$
- C** $\frac{11}{12}$
- D** $1\frac{1}{3}$

Key: B

Primary CCLS: 7.RP,1

Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.

For example, if a person walks $\frac{1}{2}$ mile in each $\frac{1}{4}$ hour, compute the unit rate as the complex fraction $\frac{1}{2} / \frac{1}{4}$ miles per hour, equivalently 2 miles per hour.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 48%

144070021_3

18

During a sale, a store offered a 40% discount on a particular camera that was originally priced at \$450. After the sale, the discounted price of the camera was increased by 40%. What was the price of the camera after this increase?

- A \$252
- B \$360
- C \$378
- D \$450

Key: C

Primary CCLS: 7.RP,3

Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 31%

134070068_3

21

What is the product of $\left(-\frac{1}{4}\right) \times \left(-\frac{3}{7}\right)$?

- A $-\frac{7}{12}$
- B $-\frac{3}{28}$
- C $\frac{3}{28}$
- D $\frac{7}{12}$

Key: C

Primary CCLS: 7.NS,2,a

Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 68%

23

Gary buys a $3\frac{1}{2}$ -pound bag of cat food every 3 weeks. Gary feeds his cat the same amount of food each day. Which expression can Gary use to determine the number of pounds of cat food his cat eats each year? (1 year = 52 weeks)

A $\frac{7}{2} \times \frac{52}{3}$

B $\frac{7}{2} \times \frac{3}{52}$

C $3\left(\frac{1}{2} \times \frac{3}{52}\right)$

D $3\left(\frac{1}{2} \times \frac{52}{3}\right)$

Key: A

Primary CCLS: 7.RP.1

Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.

For example, if a person walks $\frac{1}{2}$ mile in each $\frac{1}{4}$ hour, compute the unit rate as the complex fraction $\frac{1/2}{1/4}$ miles per hour, equivalently 2 miles per hour.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 38%

134070071_3

24 What is the decimal equivalent of $\frac{7}{8}$?

- A 0.780
- B 0.870
- C 0.875
- D 0.885

Key: C

Primary CCLS: 7.NS,2,d

Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 56%

134070073_4

26 What is the value of $\left(-\frac{1}{4} - \frac{1}{2}\right) \div \left(-\frac{4}{7}\right)$?

- A $-1\frac{5}{16}$
- B $-\frac{3}{7}$
- C $\frac{3}{7}$
- D $1\frac{5}{16}$

Key: D

Primary CCLS: 7.NS,3

Solve real-world and mathematical problems involving the four operations with rational numbers.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 39%

28

The school bus Evie rides is scheduled to arrive at her stop at 8:20 a.m. each day. The table below shows the actual arrival times of the bus for several days that were randomly selected over the past few months.

BUS ARRIVAL TIMES (a.m.)

8:21	8:21	8:19	8:20	8:23
8:22	8:20	8:18	8:20	8:18
8:21	8:20	8:19	8:17	8:25
8:20	8:20	8:18	8:19	8:24

Based on these data, what is the probability that the bus will arrive at Evie's stop before 8:20 a.m. tomorrow?

- A** $\frac{3}{10}$
- B** $\frac{1}{3}$
- C** $\frac{7}{20}$
- D** $\frac{13}{20}$

Key: C

Primary CCLS: 7.SP.6

Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 54%

134070408_1

29

What is the radius, in centimeters, of a circle that has a circumference of 16π centimeters?

- A 8
- B 16
- C 32
- D 64

calculators allowed

Key: A

Primary CCLS: 7.G,4

Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 69%

144070020_2

33

Each sales associate at an electronics store has a choice of the two salary options shown below.

- \$115 per week plus 9.5% commission on the associate's total sales
- \$450 per week with no commission

The average of the total sales amount for each associate last year was \$125,000. Based on this average, what is the difference between the two salary options each year? (52 weeks = 1 year)

- A \$4,262.11
- B \$5,545.00
- C \$10,956.90
- D \$11,525.00

calculators allowed

Key: B

Primary CCLS: 7.RP,3

Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 40%

144070036_3

36

Travis, Jessica, and Robin are collecting donations for the school band. Travis wants to collect 20% more than Jessica, and Robin wants to collect 35% more than Travis. If the students meet their goals and Travis collects \$43, how much money did they collect in all?

- A \$106.78
- B \$128.60
- C \$136.88
- D \$144.99

calculators allowed

Key: C

Primary CCLS: 7.NS,3

Solve real-world and mathematical problems involving the four operations with rational numbers.

Secondary CCLS: 7.RP,3

Percentage of Students Statewide Who Answered Correctly: 49%

144070086_2

37

The mean radius of Earth is 6,371.0 kilometers and the mean radius of Earth's Moon is 1,737.5 kilometers. What is the approximate difference in the mean circumferences, in kilometers, of Earth and Earth's Moon? Round your answer to the nearest tenth of a kilometer.

- A 40,030.2
- B 29,113.1
- C 14,556.6
- D 10,917.0

calculators allowed

Key: B

Primary CCLS: 7.G,4

Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 40%

134070062_1

38

A dealer paid \$10,000 for a boat at an auction. At the dealership, a salesperson sold the boat for 30% more than the auction price. The salesperson received a commission of 25% of the difference between the auction price and the dealership price. What was the salesperson's commission?

- A \$750
- B \$1,750
- C \$3,250
- D \$5,500

calculators allowed

Key: A

Primary CCLS: 7.RP,3

Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 40%

144070047_4

39

Which expression represents a factorization of $32m + 56mp$?

- A $8(4m + 7p)$
- B $8(4 + 7)mp$
- C $8p(4 + 7m)$
- D $8m(4 + 7p)$

calculators allowed

Key: D

Primary CCLS: 7.EE,1

Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 54%

144070151_2

40

Amber determined that the expression $\frac{-\frac{1}{2}}{-\frac{41}{15}}$ is equivalent to $\frac{15}{82}$. Which statement describes the process Amber could have used?

- A She divided $-\frac{1}{2}$ by -15 and then divided the result by 41 .
- B She multiplied $-\frac{1}{2}$ by -15 and then divided the result by 41 .
- C She divided $-\frac{1}{2}$ by -15 and then multiplied the result by 41 .
- D She multiplied $-\frac{1}{2}$ by -15 and then multiplied the result by 41 .

calculators allowed

Key: B

Primary CCLS: 7.NS,3

Solve real-world and mathematical problems involving the four operations with rational numbers.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 49%

144070071_4

41

Ben earns \$9 per hour and \$6 for each delivery he makes. He wants to earn more than \$155 in an 8-hour workday. What is the **least** number of deliveries he must make to reach his goal?

- A 11
- B 12
- C 13
- D 14

calculators allowed

Key: D

Primary CCLS: 7.EE,4,b

Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p , q , and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.

For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 55%

45

Malika and Adrian prepared containers of potato salad at a deli. Each container was supposed to have a mass of one pound. The manager selected a random sample of containers prepared by each employee to check the mass of each container. The results are shown in the table below.

MASS OF EACH CONTAINER

Malika's Containers (pounds)	Adrian's Containers (pounds)
1.10	1.30
1.08	1.21
1.05	0.79
0.95	0.90
0.98	0.88

Which inference is **best** supported by these data?

- A** Malika will produce more containers with a mass of exactly one pound than Adrian will.
- B** Adrian will produce more containers with a mass of exactly one pound than Malika will.
- C** Most of Malika's containers will have a mass closer to one pound than most of Adrian's containers.
- D** Most of Adrian's containers will have a mass closer to one pound than most of Malika's containers.

calculators allowed

Key: C

Primary CCLS: 7.SP.4

Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.

For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 65%

144070043_1

46 Which expression is equivalent to $8c + 6 - 3c - 2$?

- A** $5c + 4$
- B** $5c + 8$
- C** $11c + 4$
- D** $11c + 8$

calculators allowed

Key: A

Primary CCLS: 7.EE.1

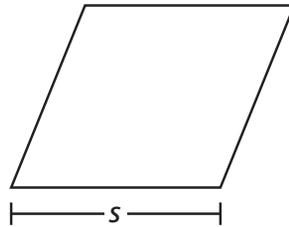
Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 67%

144070012_1

47 A rhombus with side length s is shown below.



The perimeter, P , of a rhombus is proportional to the length of each side, s . Which equation represents this relationship?

- A** $P = 4s$
- B** $s = 4P$
- C** $P = 4 + s$
- D** $s = 4 + P$

calculators allowed

Key: A

Primary CCLS: 7.RP,2,c

Represent proportional relationships by equations.

For example, if total cost t is proportional to the number n of items purchased at a constant price p , the relationship between the total cost and the number of items can be expressed as $t = pn$.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 72%

134070414_3

48

Sara is playing a board game. The probability that Sara will score a point on her next turn is $\frac{1}{3}$. Which statement describes the probability that Sara will score a point on her next turn?

- A** likely
- B** certain
- C** unlikely
- D** impossible

calculators allowed

Key: C

Primary CCLS: 7.SP,5

Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 61%

134070012_2

53

Salid bought 35 feet of window trim at a hardware store. The trim cost \$1.75 per foot, including sales tax. If Salid paid with a \$100.00 bill, how much change should he have received?

- A** \$20.00
- B** \$38.75
- C** \$61.25
- D** \$80.00

calculators allowed

Key: B

Primary CCLS: 7.EE,3

Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional $\frac{1}{10}$ of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar $9\frac{3}{4}$ inches long in the center of a door that is $27\frac{1}{2}$ inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 72%

124070024_4

54

A pile of newspapers in Ms. McGrath's art class was $17\frac{3}{4}$ inches high. Each consecutive week, for the next 5 weeks, the height of the pile of newspapers increased by $8\frac{7}{12}$ inches. What was the height, in inches, of the pile after 3 weeks?

A $25\frac{3}{4}$

B $26\frac{1}{4}$

C $42\frac{1}{4}$

D $43\frac{1}{2}$

calculators allowed

Key: D

Primary CCLS: 7.NS,3

Solve real-world and mathematical problems involving the four operations with rational numbers.

Secondary CCLS: None

Percentage of Students Statewide Who Answered Correctly: 32%

57

Harper has \$15.00 to spend at the grocery store. She is going to buy bags of fruit that cost \$4.75 each and one box of crackers that costs \$3.50.

Write and solve an inequality that models this situation and could be used to determine the **maximum** number of bags of fruit, b , Harper can buy.

Show your work.

Answer _____ bags of fruit

calculators allowed

Primary CCLS: 7.EE.4,b

Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p , q , and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.

For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.

Secondary CCLS: None

Statewide Average Points Earned: 1.02 out of 2

57

Harper has \$15.00 to spend at the grocery store. She is going to buy bags of fruit that cost \$4.75 each and one box of crackers that costs \$3.50.

Write and solve an inequality that models this situation and could be used to determine the maximum number of bags of fruit, b , Harper can buy.

Show your work.

$$4.75b + 3.50 \leq 15.00$$

$$\begin{array}{r}
 4.75b + 3.50 \leq 15.00 \\
 -3.50 \quad -3.50 \\
 \hline
 4.75b = 11.50 \\
 \hline
 4.75 \quad 4.75 \\
 \hline
 b = 2.42\ldots \rightarrow 2
 \end{array}$$

Answer 2 bags of fruit

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures embodied in the task. The response provides a correct inequality ($4.75b + 3.50 \leq 15.00$). The inequality is solved correctly ($b = 2.42\ldots$) and the response provides a correct answer (2).

59

A convenience store sells two brands of orange juice. Brand A contains 8 fluid ounces and costs \$1.28. Brand B contains 12 fluid ounces and costs \$1.68.

What is the difference in cost, in dollars, per fluid ounce between the two brands of juice?

Show your work.

Answer \$ _____ per fluid ounce

calculators allowed

Primary CCLS: 7.RP,2,b

Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

Secondary CCLS: 7.RP,1

Statewide Average Points Earned: 1.09 out of 2

59

A convenience store sells two brands of orange juice. Brand A contains 8 fluid ounces and costs \$1.28. Brand B contains 12 fluid ounces and costs \$1.68.

What is the difference in cost, in dollars, per fluid ounce between the two brands of juice?

Show your work.

$\begin{array}{r} \text{Brand A} \\ \hline \$1.28 \\ \hline 8 \\ \hline 0.16 \text{ per fl. oz.} \end{array}$	$\begin{array}{r} \text{Brand B} \\ \hline 1.68 \\ \hline 12 \\ \hline 0.14 \text{ per fl. oz.} \end{array}$
$\begin{array}{r} 0.16 \\ -0.14 \\ \hline 0.02 \end{array}$	

Answer \$ 0.02 per fluid ounce

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures embodied in the task. The cost per ounce is calculated for each brand by setting up fractions, and Brand B is subtracted from Brand A to find a correct difference (0.02).

60

Members of a baseball team raised \$967.50 to go to a tournament. They rented a bus for \$450.00 and budgeted \$28.75 per player for meals. They will spend all the money they raised.

Write and solve an equation that models this situation and could be used to determine the number of players, p , the team could bring to the tournament.

Show your work.

Answer _____ players

calculators allowed

Primary CCLS: 7.EE.4.a

Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p , q , and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.

For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?

Secondary CCLS: None

Statewide Average Points Earned: 1.23 out of 2

60

Members of a baseball team raised \$967.50 to go to a tournament. They rented a bus for \$450.00 and budgeted \$28.75 per player for meals. They will spend all the money they raised.

Write and solve an equation that models this situation and could be used to determine the number of players, p , the team could bring to the tournament.

Show your work.

$$\begin{array}{r} 967.50 \\ -450.00 \\ \hline 517.50 \end{array}$$
$$P = (967.50 - 450.00) \div 28.75 = P$$
$$P = 517.50 \div 28.75 =$$
$$P = 18$$

Answer 18 players

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures embodied in the task. A correct equation is provided ($P = (967.50 - 450.00) \div 28.75$), and the equation is solved correctly to find the correct answer ($P = 18$).

- 61** Last week Rachel power walked $2\frac{3}{5}$ miles per day on each of the 7 days. During the same week, she also jogged $5\frac{3}{4}$ miles per day on 4 days. What was the total number of miles Rachel power walked and jogged last week?

Show your work.

Answer _____ miles

calculators allowed

Primary CCLS: 7.NS,3

Solve real-world and mathematical problems involving the four operations with rational numbers.

Secondary CCLS: None

Statewide Average Points Earned: 1.08 out of 2

61

Last week Rachel power walked $2\frac{3}{5}$ miles per day on each of the 7 days. During the same week, she also jogged $5\frac{3}{4}$ miles per day on 4 days. What was the total number of miles Rachel power walked and jogged last week?

Show your work.

$$2\frac{3}{5} \times 7 = \frac{91}{5} = 18\frac{1}{5}$$

$$5\frac{3}{4} \times 4 = \frac{23}{1} = 23$$

$$\begin{array}{r} 18\frac{1}{5} \\ + 23 \\ \hline 41\frac{1}{5} \end{array}$$

$$\begin{array}{r} 13 \\ \times 7 \\ \hline 91 \end{array}$$

Answer $41\frac{1}{5}$ miles

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures embodied in the task. The response calculates the total miles power walked by multiplying the number of miles by seven, for each day of the week, and calculates the total miles jogged by multiplying the number of miles by the four days Rachel jogged ($2\frac{3}{5} \times 7 = \frac{91}{5} = 18\frac{1}{5}$) and ($5\frac{3}{4} \times 4 = \frac{23}{1} = 23$).

The two values are added to determine the total number of miles Rachel power walked and jogged ($18\frac{1}{5} + 23 = 41\frac{1}{5}$).

62

The table below shows the prices of different numbers of cards on a web site.

COST OF CARDS

Number of Cards	Price (dollars)
20	13
40	26
60	39
100	65

For each order, the web site applies a 7.7% sales tax to the price of the cards, plus a one-time mailing fee of \$5.95. Based on the information in the table, what will be the total cost for an order for 280 cards?

Show your work.

Answer \$ _____

calculators allowed

Primary CCLS: 7.RP,2,b

Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

Secondary CCLS: 7.RP,3

Statewide Average Points Earned: 1.20 out of 3

The table below shows the prices of different numbers of cards on a web site.

COST OF CARDS

Number of Cards	Price (dollars)
20	13
40	26
60	39
100	65

For each order, the web site applies a 7.7% sales tax to the price of the cards, plus a one-time mailing fee of \$5.95. Based on the information in the table, what will be the total cost for an order for 280 cards?

Show your work.

$$\begin{array}{r}
 182 \times 1.077 \\
 + 196.01 \\
 \hline
 201.96
 \end{array}
 +
 \begin{array}{r}
 65 \\
 65 \\
 26 \\
 26 \\
 \hline
 182
 \end{array}$$

Answer \$ 201.96

Score Point 3 (out of 3 points)

This response answers the question correctly and demonstrates a thorough understanding of the mathematical concepts and procedures embodied in the task. The response correctly calculates the cost of the 280 cards by adding the cost of 100 cards two times to the cost of 40 cards two times ($65 + 65 + 26 + 26 = 182$). The sales tax is calculated correctly (182×1.077) resulting in the cost of the cards including the tax (196.01). Finally, the cost of shipping is added ($196.01 + 5.95 = 201.96$) to get the total cost.

65

A scientist uses a submarine to study ocean life.

- She begins at sea level, which is at an elevation of 0 feet.
- She travels straight down for 90 seconds at a speed of 3.5 feet per second.
- She then travels directly up for 30 seconds at a speed of 2.2 feet per second.

After this 120-second period, how much time, in seconds, will it take for the scientist to travel back to sea level at the submarine's maximum speed of 4.8 feet per second? Round your answer to the nearest tenth of a second.

Show your work.

Answer _____ seconds

calculators allowed

Primary CCLS: 7.EE,3

Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional $\frac{1}{10}$ of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar $9\frac{3}{4}$ inches long in the center of a door that is $27\frac{1}{2}$ inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.

Secondary CCLS: 7.RP,1**Statewide Average Points Earned: 1.02 out of 3**

A scientist uses a submarine to study ocean life.

- She begins at sea level, which is at an elevation of 0 feet.
- She travels straight down for 90 seconds at a speed of 3.5 feet per second.
- She then travels directly up for 30 seconds at a speed of 2.2 feet per second.

After this 120-second period, how much time, in seconds, will it take for the scientist to travel back to sea level at the submarine's maximum speed of 4.8 feet per second? Round your answer to the nearest tenth of a second.

Show your work.

$$90(3.5) = 315 \text{ ft}$$

$$30(2.2) = 66 \text{ ft}$$

$$0 - 315 + 66 = -315 + 66 = -249 \text{ ft}$$

$$|-249| \div 4.8 = 249 \div 4.8 = 51.875 \approx 51.9$$

Answer 51.9 seconds

Score Point 3 (out of 3 points)

This response answers the question correctly and demonstrates a thorough understanding of the mathematical concepts and procedures embodied in the task. The response correctly calculates the correct initial depth [$90(3.5) = 315\text{ft}$]. The initial ascent is calculated correctly [$30(2.2) = 66\text{ft}$]. Finally, the distance required for the final ascent ($0 - 315 + 66 = -315 + 66 = -249\text{ft}$) and the time to make the ascent ($|-249| \div 4.8 = 249 \div 4.8 = 51.875 \approx 51.9$) are calculated, resulting in a correct answer (51.9).

2-Point Holistic Rubric

Score Points:

2 Points	<p>A two-point response includes the correct solution to the question and demonstrates a thorough understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none">• indicates that the student has completed the task correctly, using mathematically sound procedures• contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and/or procedures• may contain inconsequential errors that do not detract from the correct solution and the demonstration of a thorough understanding
1 Point	<p>A one-point response demonstrates only a partial understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none">• correctly addresses only some elements of the task• may contain an incorrect solution but applies a mathematically appropriate process• may contain the correct solution but required work is incomplete
0 Points*	<p>A zero-point response is incorrect, irrelevant, incoherent, or contains a correct solution obtained using an obviously incorrect procedure. Although some elements may contain correct mathematical procedures, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.</p>

* Condition Code A is applied whenever a student who is present for a test session leaves an entire constructed-response question in that session completely blank (no response attempted).

3-Point Holistic Rubric

Score Points:

3 Points	<p>A three-point response includes the correct solution(s) to the question and demonstrates a thorough understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none">• indicates that the student has completed the task correctly, using mathematically sound procedures• contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and/or procedures• may contain inconsequential errors that do not detract from the correct solution(s) and the demonstration of a thorough understanding
2 Points	<p>A two-point response demonstrates a partial understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none">• appropriately addresses most, but not all, aspects of the task using mathematically sound procedures• may contain an incorrect solution but provides sound procedures, reasoning, and/or explanations• may reflect some minor misunderstanding of the underlying mathematical concepts and/or procedures
1 Point	<p>A one-point response demonstrates only a limited understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none">• may address some elements of the task correctly but reaches an inadequate solution and/or provides reasoning that is faulty or incomplete• exhibits multiple flaws related to misunderstanding of important aspects of the task, misuse of mathematical procedures, or faulty mathematical reasoning• reflects a lack of essential understanding of the underlying mathematical concepts• may contain the correct solution(s) but required work is limited
0 Points*	<p>A zero-point response is incorrect, irrelevant, incoherent, or contains a correct solution obtained using an obviously incorrect procedure. Although some elements may contain correct mathematical procedures, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.</p>

* Condition Code A is applied whenever a student who is present for a test session leaves an entire constructed-response question in that session completely blank (no response attempted).

2015 2- and 3-Point Mathematics Scoring Policies

Below are the policies to be followed while scoring the mathematics tests for all grades:

1. If a student does the work in other than a designated “Show your work” area, that work should still be scored. (Additional paper is an allowable accommodation for a student with disabilities if indicated on the student’s Individual Education Program or Section 504 Accommodation Plan.)
2. If the question requires students to show their work, and the student shows appropriate work and clearly identifies a correct answer but fails to write that answer in the answer blank, the student should still receive full credit.
3. In questions that provide ruled lines for students to write an explanation of their work, mathematical work shown elsewhere on the page should be considered and scored.
4. If the student provides one legible response (and one response only), teachers should score the response, even if it has been crossed out.
5. If the student has written more than one response but has crossed some out, teachers should score only the response that has **not** been crossed out.
6. Trial-and-error responses are **not** subject to Scoring Policy #5 above, since crossing out is part of the trial-and-error process.
7. If a response shows repeated occurrences of the same conceptual error within a question, the student should **not** be penalized more than once.
8. In questions that require students to provide bar graphs,
 - in Grades 3 and 4 only, touching bars are acceptable
 - in Grades 3 and 4 only, space between bars does **not** need to be uniform
 - in all grades, widths of the bars must be consistent
 - in all grades, bars must be aligned with their labels
 - in all grades, scales must begin at 0, but the 0 does **not** need to be written
9. In questions requiring number sentences, the number sentences must be written horizontally.
10. In pictographs, the student is permitted to use a symbol other than the one in the key, provided that the symbol is used consistently in the pictograph; the student does not need to change the symbol in the key. The student may **not**, however, use multiple symbols within the chart, nor may the student change the value of the symbol in the key.
11. If students are not directed to show work, any work shown will not be scored. This applies to items that do not ask for any work and items that ask for work for one part and do not ask for work in another part.
12. Condition Code A is applied whenever a student who is present for a test session leaves an entire constructed-response question in that session completely blank (no response attempted). This is not to be confused with a score of zero wherein the student does respond to part or all of the question but that work results in a score of zero.