★ Lumos Learning
Developed by Expert Teachers

Grade **7**

GEORGIA
Math
GMAS Practice

Updated for 2021-22

(((tedBook)))
ONLINE

2 GMAS Practice Tests

7 Question Types

COVERS 30+ SKILLS

Georgia Department of Education does not sponsor or endorse this product.

Important Instruction

Students, Parents, and Teachers can use the URL or QR code provided below to access two full-length Lumos GMAS practice tests. Please note that these assessments are provided in the Online format only.

URL
Visit the URL below and place the book access code **http://www.lumoslearning.com/a/tedbooks** **Access Code: xxxxx-xxxx**

This is a sample copy and not the full version of the workbook

INTRODUCTION

This book is specifically designed to improve student achievement on the Smarter Balanced Assessment Consortium (GMAS) Test. With over a decade of expertise in developing practice resources for standardized tests, Lumos Learning has designed the most efficient methodology to help students succeed on the state assessments (See Figure 1).

Lumos Smart Test Practice provides students GMAS assessment rehearsal along with an efficient pathway to overcome any standards proficiency gaps. Students perform at their best on standardized tests when they feel comfortable with the test content as well as the test format. Lumos online practice tests are meticulously designed to mirror the GMAS assessment. It adheres to the guidelines provided by the GMAS for the number of questions, standards, difficulty level, sessions, question types, and duration.

The process starts with students taking the online diagnostic assessment. This online diagnostic test will help assess students' proficiency levels in various standards.

After completion of the diagnostic assessment, students can take note of standards where they are not proficient. This step will help parents and educators in developing a targeted remedial study plan based on a student's proficiency gaps.

Once the targeted remedial study plan is in place, students can start practicing the lessons in this workbook that are focused on specific standards.

After the student completes the targeted remedial practice, the student should attempt the second online GMAS practice test. Record the proficiency levels in the second practice test to measure the student progress and identify any additional learning gaps. Further targeted practice can be planned

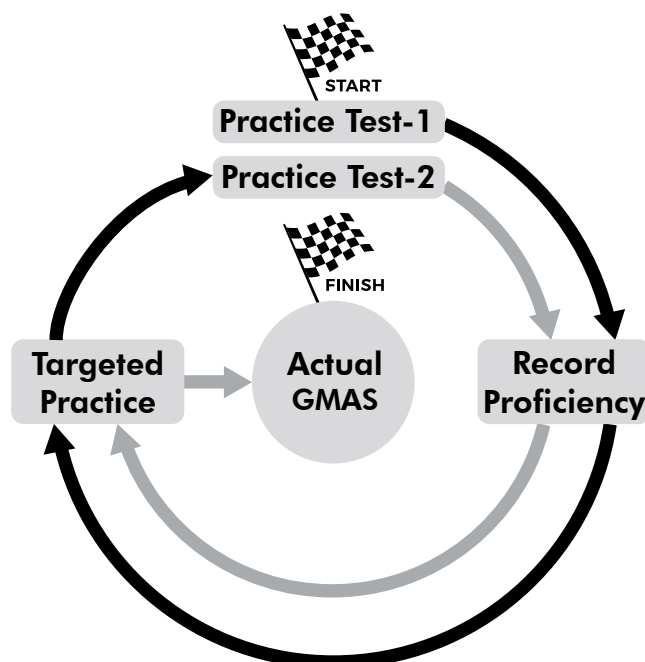## Lumos Smart Test Prep Methodology

Figure 1

Table of Contents

Chapter 1

Lumos Smart Test Prep Methodology

Use the URL and access code provided below or scan the QR code to access the first GMAS practice test to get started. The online GMAS practice test mirrors the actual Smarter Balanced assessments in number of questions, item types, test duration, test tools and more.

After completing the test, your student will receive immediate feedback with detailed reports on standards mastery. With this report, use the next section of the book to design a practice plan for your student.

URL
Visit the URL below and place the book access code
http://www.lumoslearning.com/a/tedbooks
Access Code: xxxxx-xxxxx

This is a sample copy and not the full version of the workbook

Step 2: Review the Personalized Study Plan Online

After student complete the online Practice Test 1, student can access their individualized study plan from the table of contents (Figure 2).
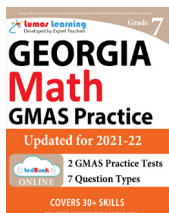
Parents and Teachers can also review the study plan through their Lumos account.

Lumos StepUp GMAS Online Practice and Assessments Grade 7 Math

HOMEWORK

Lesson Name		Total Questions	Total Points	Incorrect	Student Score	% Score	Pending
PT1 Practice Test 1	Study Plan	4	4	3	1	25%	0
CAT 1		4	4	3	1	25%	
PT 1							

BACK COURSE   Lumos Smart Test Practice: Personalized Study Plan for Sam

Lumos StepUp - GMAS Online Practice and Assessments - Grade 7 Math

Based on your performance in the online Practice Test 1, we recommend the following additional practice.
Please uses the related lessons in the Grade 7 GMAS Math practice book you purchased.

Upgrade to Full Program

50   90

GEORGIA Math GMAS Practice
Updated for 2021-22
2 GMAS Practice Tests
7 Question Types
COVERS 30+ SKILLS

X
EXPORT AS EXCEL

Lesson Name	Standard Info	☐ Targeted practice status	Percentage Score	
Ratios and Proportional Relationships				
Unit Rates	7.RP.A.1	☐	0%	●
Understanding and Representing Proportions	7.RP.A.2.A	☐	0%	●
Finding Constant of Proportionality	7.RP.A.2.B	☐	0%	●

Step 3: Complete Targeted Practice

Using the information provided in the study plan report, complete the targeted practice using the appropriate lessons to overcome proficiency gaps. With lesson names included in the study plan, find the appropriate topics in this workbook and answer the questions provided. Students can refer to the answer key and detailed answers provided for each lesson to gain further understanding of the learning objective. Marking the completed lessons in the study plan after each practice session is recommended.(See Figure 3)

BACK COURSE	Lumos Smart Test Practice: Personalized Study Plan for Sam		

Lumos StepUp - GMAS Online Practice and Assessments - Grade 7 Math

Based on your performance in the online Practice Test 1, we recommend the following additional practice.
Please uses the related lessons in the Grade 7 GMAS Math practice book you purchased.

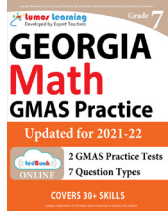**Upgrade to Full Program**

50   90

EXPORT AS EXCEL

Lesson Name	Standard Info	Targeted practice status	Percentage Score	
Ratios and Proportional Relationships				
Unit Rates	7.RP.A.1	☑	0%	●
Understanding and Representing Proportions	7.RP.A.2.A	☑	0%	●
Finding Constant of Proportionality	7.RP.A.2.B	☐	0%	●

Figure 3

Step 4: Access the Practice Test 2 Online

After completing the targeted practice in this workbook, students should attempt the second GMAS practice test online. Using the student login name and password, login to the Lumos website to complete the second practice test.

Step 5: Repeat Targeted Practice

Repeat the targeted practice as per Step 3 using the second study plan report for Practice test 2 after completion of the second GMAS rehearsal.

Chapter 2:
Ratios & Proportional Relationships

Lesson 1: Unit Rates

You can scan the QR code given below or use the url to access additional EdSearch resources including videos and mobile apps related to *Unit Rates*.

Categories | About 15 results (0.008 seconds)

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Rate problems with fractions

Resource: Khan Academy
Standard: 7.RP.A.1
Grade: 7
Subject: Math

Topic Standard

ed Search ***Unit Rates***

URL	QR Code
http://www.lumoslearning.com/a/7rpa1	

1. A tennis match was delayed because of rain. The officials were not prepared for the delay. They covered the 25ft by 20ft court with 13ft by 10ft plastic covers. How many plastic covers were needed to cover the court from the rain?

   Ⓐ 3 plastic covers
   Ⓑ 4 plastic covers
   Ⓒ 5 plastic covers
   Ⓓ 6 plastic covers

2. John eats a bowl of cereal for 3 of his 4 meals each day. He finishes two gallons of milk in eight days. How much milk does John use for one bowl of cereal? (Assume he only uses the milk for his cereal.)

   Ⓐ One-twelfth of a gallon of milk
   Ⓑ One cup of milk
   Ⓒ Two cups of milk
   Ⓓ One-sixth of a gallon of milk

3. A recipe to make a cake calls for three-fourths of a cup of milk. Mary used this cake as the first layer of a wedding cake. The second layer was half the size of the first layer, and the third layer was half the size of the second layer. How much milk would be used for the entire wedding cake?

   Ⓐ One and two-thirds cups of milk
   Ⓑ One and one-third cups of milk
   Ⓒ One and five-sixteenths cups of milk
   Ⓓ One cup of milk

4. One third of a quart of paint covers one fourth of a basketball court. How much paint does it take to paint the entire basketball court?

   Ⓐ one and one-third quarts
   Ⓑ one quart
   Ⓒ one and one-fourth quarts
   Ⓓ one and three-fourths quarts

5. The total cost of 100 pencils purchased at a constant rate is $39.00. What is the unit price?

   Ⓐ $39.00
   Ⓑ $3.90
   Ⓒ $0.39
   Ⓓ $0.039

6. **A construction worker was covering the bathroom wall with tiles. He covered three-fifths of the wall with 50 tiles. How many tiles will it take to cover the entire wall?**

   Ⓐ 83 tiles
   Ⓑ 83 and one-third tiles
   Ⓒ 85 tiles
   Ⓓ 83 and one-half tiles

7. **Jim ran four-fifths of a mile and dropped out of the 1600 meter race. His pace was 12 miles an hour until the point he dropped out of the race. How many minutes did he run?**

   Ⓐ 4 minutes and 30 seconds
   Ⓑ 4 minutes
   Ⓒ 4 minutes and 20 seconds
   Ⓓ 4 minutes and 10 seconds

8. **Ping played three-fourths of a football game. The game was three and a half hours long. How many hours did Ping play in this game?**

   Ⓐ 2 hours 37 minutes
   Ⓑ 2 hours 37 minutes and 30 seconds
   Ⓒ 2 hours 37 minutes and 20 seconds
   Ⓓ 2 hours 37 minutes and 10 seconds

9. **Bill is working out by running up and down the steps at the local stadium. He runs a different number of steps in random order.**

   Which of the following is his best time of steps per minute?

   Ⓐ 25 steps in 5 minutes
   Ⓑ 30 steps in 5.5 minutes
   Ⓒ 20 steps in 4.5 minutes
   Ⓓ 15 steps in 4 minutes

10. **Doogle drove thirty and one-third miles toward his brother's house in one-third of an hour. About how long will the entire hundred mile trip take at this constant speed?**

   Ⓐ 1 hour
   Ⓑ 1 hour and 6 minutes
   Ⓒ 1 hour and 1 minutes
   Ⓓ 1 hour and 3 minutes

11. A store is selling T-Shirts. Which is the best deal? Select all correct answers that apply.

Ⓐ 8 for $26
Ⓑ 5 for $30
Ⓒ 4 for $15
Ⓓ 12 for $39
Ⓔ 10 for $45

12. Read each sentence and select whether the rate is a rate or unit rate.

	Rate	Unit Rate
The earth rotates 1.25 degrees in 5 minutes.	○	○
Sarah reads 13 pages in 1/3 of an hour.	○	○
A man pays $45.24 for 16 gallons of gasoline.	○	○
The car drives 25 miles per hour.	○	○
The soup costs $1.23 per ounce.	○	○
40 millimeters of rain fell in 1 minute.	○	○

13. What is the unit rate for a pound of seed? Circle the correct answer choice.

Pounds of Seed	Total Cost
10	$17.50
20	$35.00
30	$52.50
40	$70.00

Ⓐ $3.50
Ⓑ $1.75
Ⓒ $17.50
Ⓓ $7.25

Chapter 2:

Ratios and Proportional Relationships

Answer Key
&
Detailed Explanations

Lesson 1: Unit Rates

Question No.	Answer	Detailed Explanation
1	B	First, find out the area of the tennis court. (1) $25 \times 20 = 500$ square feet Next, find out the area of one plastic cover (2) $13 \times 10 = 130$ square feet Divide 500 by 130 (3) $500 \div 130 = 3.84$ Therefore, 4 plastic covers are needed for the tennis court.
2	A	First, find out how much cereal John eats in 8 days: (1) 3 bowls per day x 8 days = 24 bowls. Since it takes 2 gallons of milk to eat 24 bowls of cereal, set up the ratio and simplify: (2) $\frac{2}{24}$ (GCF is 2, so divide numerator and denominator to find simplest form) (3) $\frac{1}{12}$ Therefore, John uses $\frac{1}{12}$ of a gallon of milk in each bowl of cereal.
3	C	To solve this problem, first, find the amount of milk required for each layer. For the first layer, $\frac{3}{4}$ cup of milk is required. Since the second layer is half the size, the amount of milk required will be $\frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$ cups are required. For the third layer, which is half of layer two, the milk required will be $\frac{3}{8} \times \frac{1}{2} = \frac{3}{16}$ of a cup. The total milk required will be $\frac{3}{4} + \frac{3}{8} + \frac{3}{16}$ To add, find the LCD, which is 16 in this case. Hence, $\frac{3}{4} + \frac{3}{8} + \frac{3}{16}$ represented by LCD will become $(\frac{3}{4} \times \frac{4}{4}) + (\frac{3}{8} \times \frac{2}{2}) + \frac{3}{16}$ $= \frac{12}{16} + \frac{6}{16} + \frac{3}{16} = \frac{21}{16}$ Converting this to mixed fraction we get, $1\frac{5}{16}$. Hence, the correct answer choice is Option C.

Question No.	Answer	Detailed Explanation
4	A	If $\frac{1}{4}$ th of a basketball court can be covered by $\frac{1}{3}$ rd of a quart of paint then to cover the entire court 4 times the amount required for covering $\frac{1}{4}$ th of a court would be required. Therefore, Paint required to cover the entire court $= \frac{1}{3} \times 4 = \frac{4}{3} = 1\frac{1}{3}$
5	C	Unit price means price per one unit. Therefore, we need to know the price per pencil. Since the price of the pencils is defined to be a constant rate, then the total cost ($39.00) divided by the total number of pencils (100) will give us the cost per pencil (or per unit). $39.00 / 100 = $0.39 per pencil The unit price is $0.39. The correct answer is $0.39.
6	B	To solve this problem, find out how much it takes to cover 1/5 of the wall, and then multiply by 5. (1) 50 ÷ 3 = (how much it takes to cover 1/5 of the bathroom wall) (2) multiply 16.66 × 5 = 83.33 (3) $83.33 = 83\frac{1}{3}$ Therefore, it will take 83 and one-third tiles to cover the entire wall.
7	B	To solve this problem, set up a proportion: (distance)/(time) = (distance)/(time) Plug in the numbers (you can convert to decimals to simplify the process): $\frac{0.8 \text{ mile}}{x \text{ min}} = \frac{12 \text{ miles}}{60 \text{ min}}$. Using cross products a/b = c/d is ad = bc (0.8)(60) = (x)(12) 48 = 12x (solve for x by dividing each side by 12)4 = x. Therefore, Jim ran 4 minutes.
8	B	To solve this problem, multiply $\frac{3}{4} \times 3\frac{1}{2}$ (1). Convert $3\frac{1}{2}$ to an improper fraction $= \frac{7}{2}$ (2) $\frac{3}{4} \times \frac{7}{2} =$ (3) $\frac{3 \times 7}{4 \times 2} =$ (4) $\frac{21}{8}$ (convert back to a mixed number)(5) $2\frac{5}{8}$ (6) $\frac{5}{8} = 37.5$ minutes. Therefore, Ping played 2 hours 37 minutes and 30 seconds.

Question No.	Answer	Detailed Explanation
9	B	To answer the question we must find in which case he ran the most steps per minute.

Since he is running up and down, we double the number of steps; so
$\dfrac{50}{5}$ = 10 steps per minute

$\dfrac{60}{5.5}$ = 10.9 steps per minute * (when rounded to the nearest tenth)

$\dfrac{40}{4.5}$ = 8.9 steps per minute (when rounded to the nearest tenth)

$\dfrac{30}{4}$ = 7.5 steps per minute

30 steps in 5.5 minutes gives an average of 10.9 steps per minute which is his best time.

30 steps in 5.5 minutes is the correct answer.

(Note : If we don't double the steps, then also answer does not change. Only the number of steps per minute will differ) |
| 10 | B | To solve this problem, set up a proportion: (distance)/(time) = (distance)/(time) $\dfrac{1}{3}$ of an hour is equivalent to 20 minutes. Plug in the numbers (you can convert to decimals to simplify the process): $\dfrac{30.33 \text{ miles}}{20 \text{ minutes}} = \dfrac{100 \text{ miles}}{x \text{ minutes}}$.
Using cross products a/b = c/d is ad = bc

(30.33)(x) = (20)(100)

30.33x = 2000 (solve for x by dividing each side by 30.33) x = 65.94 (round up to the nearest whole number). Since 65.94 is almost 66 minutes, that is the same as one hour and 6 minutes. |
| 11 | A and D | A and D are correct options.
$26 divided by 8 = $3.25
$39 divided by 12 = $3.25
$30 divided by 5 = $6
$15 divided by 4 = $3.75
$45 divided by 10 = $4.50
So the best deal is the deal where the unit cost is the lowest. Therefore the two deals where the unit rates are $3.25 is the correct answer. |

Question No.	Answer	Detailed Explanation

12

	Rate	Unit Rate
The earth rotates 1.25 degrees in 5 minutes.	●	○
Sarah reads 13 pages in 1/3 of an hour.	●	○
A man pays $45.24 for 16 gallons of gasoline.	●	○
The car drives 25 miles per hour.	○	●
The soup costs $1.23 per ounce.	○	●
40 millimeters of rain fell in 1 minute.	○	●

The unit rates are rates that reflect amounts per 1 unit. Rates are comparisons of two amounts that are not zero.

Chapter 3: The Number System

Lesson 1: Rational Numbers, Addition & Subtraction

You can scan the QR code given below or use the url to access additional EdSearch resources including videos and mobile apps related to *Rational Numbers, Addition & Subtraction*.

Categories   About 195 results (0.008 seconds)

Videos (106)

Khan Academy (65)   (CCSS: 7.NS.A.1, 7.NS.A.2) This number sense activity bundle focuses on

Questions (17)   integer operations. Students will add, subtract, multiply and divide

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ed Search — *Rational Numbers, Addition & Subtraction*

URL	QR Code
http://www.lumoslearning.com/a/7nsa1	

1. Evaluate: 25 + 2.005 - 7.253 - 2.977

    Ⓐ -16.775
    Ⓑ 16.775
    Ⓒ 167.75
    Ⓓ 1.6775

2. Add and/or subtract as indicated : $- 3 \dfrac{4}{5} + 9 \dfrac{7}{10} - 2 \dfrac{11}{20} =$

    Ⓐ $3 \dfrac{7}{20}$

    Ⓑ $4 \dfrac{7}{10}$

    Ⓒ $4 \dfrac{9}{20}$

    Ⓓ $3 \dfrac{1}{20}$

3. Linda and Carrie made a trip from their hometown to a city about 200 miles away to attend a friend's wedding. The following chart shows their distances, stops and times. What part of their total trip did they spend driving?

3hr	driving
15 min	rest stop
1 1/2 hr	driving
1 hr	rest stop
20 min	driving

    Ⓐ $\dfrac{4}{5}$

    Ⓑ $\dfrac{2}{5}$

    Ⓒ $\dfrac{58}{73}$

    Ⓓ $\dfrac{99}{100}$

4. If $a = \dfrac{5}{6}$, $b = -\dfrac{2}{3}$ and $c = -1\dfrac{1}{3}$, find $a - b - c$.

Ⓐ $-1\dfrac{1}{6}$

Ⓑ $2\dfrac{5}{6}$

Ⓒ $-2\dfrac{1}{6}$

Ⓓ $-2\dfrac{5}{6}$

5. If Ralph ate half of his candy bar followed by half of the remainder followed by half of that remainder, what part was left?

Ⓐ $\dfrac{1}{4}$

Ⓑ $\dfrac{1}{8}$

Ⓒ $\dfrac{1}{6}$

Ⓓ $\dfrac{1}{3}$

6. Mary is making a birthday cake to surprise her mom. She needs $3\dfrac{1}{2}$ cups of flour but she only has $\dfrac{1}{3}$ cup. How much more flour does she need?

7. Ricky purchased shoes for $159.95 and then exchanged them at a buy 1, get 1 half off sale. The shoes that he purchased on his return trip were $74.99 and $68.55. How much did he receive back from the store after his second transaction?

   Ⓐ $37.50
   Ⓑ $68.55
   Ⓒ $34.28
   Ⓓ $50.68

8. Simplify the following expression:

   $3.24 - 1.914 - 6.025 + 9.86 - 2.2 + 5\dfrac{1}{2} =$

   Ⓐ -8.461
   Ⓑ 8.461
   Ⓒ -11.259
   Ⓓ 11.259

9. John had $76.00. He gave Jim $42.45 and gave Todd $21.34. John will receive $14.50 later in the evening. How much money will John have later that night?

   Ⓐ $25.71
   Ⓑ $26.67
   Ⓒ $26.71
   Ⓓ $24.71

10. Jeri has had a savings account since she entered first grade. Each month of the first year she saved $1.00. Each month of the second year she saved $2.00 etc until she completed ten years in which she saved $10.00 each month. How much does she have saved at the end of ten years?

   Ⓐ $660
   Ⓑ $648
   Ⓒ $636
   Ⓓ $624

11. Solve : $\dfrac{3}{7} + \left(-\dfrac{5}{7}\right)$ Write your answer in the box given below.

12. Which expressions equal $-\dfrac{3}{4}$ **? Select all the correct answers.**

Ⓐ $\dfrac{1}{8} - \dfrac{7}{8}$

Ⓑ $\dfrac{7}{8} - \dfrac{1}{8}$

Ⓒ $-\dfrac{6}{4} + \dfrac{3}{4}$

Ⓓ $\dfrac{1}{4} + \dfrac{1}{8}$

13. Read the number sentences below and match it with the correct associated property.

	Associative Property of Addition	Inverse Property of Addition	Identity Property of Addition
$\dfrac{2}{5} + 0 = \dfrac{2}{5}$	○	○	○
$\dfrac{1}{4} + \left(\dfrac{2}{3} + \dfrac{7}{8}\right) = \left(\dfrac{1}{4} + \dfrac{2}{3}\right) + \dfrac{7}{8}$	○	○	○
$\dfrac{6}{7} + -\dfrac{6}{7} = 0$	○	○	○

Chapter 3: The Number System

Answer Key
&
Detailed Explanations

Lesson 1: Rational Numbers, Addition & Subtraction

Question No.	Answer	Detailed Explanation
1	B	Remember: adding and subtracting rational numbers works just like integers. If you need to carry or borrow, the rules remain the same. 25 + 2.005 - 7.253 - 2.977 27.005 - 7.253 - 2.977 , 19.752 - 2.977 = 16.775
2	A	$-3\frac{4}{5} + 9\frac{7}{10} - 2\frac{11}{20} = -3\frac{16}{20} + 9\frac{14}{20} - 2\frac{11}{20}$ $-5\frac{27}{20} + 9\frac{14}{20} = -5\frac{27}{20} + 8\frac{34}{20}$, $3\frac{7}{20}$ is the correct answer.
3	C	They spent 6 hours and 5 min total on their trip. Of that time, 4 hours and 50 minutes were spent driving. $4\frac{5}{6}$ hrs driving out of $6\frac{1}{12}$ hours. Converting into improper fractions we get $(\frac{29}{6})$ out of $(\frac{73}{12})$. $(\frac{29}{6})\times(\frac{12}{73}) = \frac{58}{73}$ hours spent driving
4	B	If $a = \frac{5}{6}$, $b = -\frac{2}{3}$ and $c = -1\frac{1}{3}$, find a - b - c. $\frac{5}{6} - (-\frac{2}{3}) - (-1\frac{1}{3})$ $= \frac{5}{6} + \frac{4}{6} + 1\frac{2}{6} = 1\frac{11}{6} = 2\frac{5}{6}$. $2\frac{5}{6}$ is the correct answer.
5	B	Starting with a full candy bar, we take away 1/2 leaving 1/2. Then we take away 1/2 of the remaining half leaving 1/4 of the original candy bar. Then we take away half of the 1/4 leaving 1/8 of the original bar. 1/8 is the correct answer.

Question No.	Answer	Detailed Explanation
6		Number of more cup of flour required by Mary for making birthday cake = Number of cup of flour needed to prepare cake - Number of cup of flour Mary already has $= 3\frac{1}{2} - \frac{1}{3} = \frac{7}{2} - \frac{1}{3} = \frac{(21-2)}{6} = \frac{19}{6} = 3\frac{1}{6}$ Mary require $3\frac{1}{6}$ cup more flour to prepare the birthday cake.
7	D	On his second trip to the store he paid $74.99 plus half of $68.55. $74.99 + $34.28 = $109.27 $159.95 - 109.27 = $50.68 $50.68 is the correct answer.
8	B	First, we will change 5 1/2 to 5.5. Then we have 3.24 - 1.914 - 6.025 +9.86 -2.2 + 5.5 = 8.461 8.461 is the correct answer.
9	C	To solve this problem, list all the monetary values, along with the proper operation, before evaluating it. For this problem, words like "give" mean to subtract, while "receives" means to add. (1) 76.00 - 42.45 - 21.34 + 14.50 = (2) 33.55 - 21.34 + 14.50 = (3) 12.21 + 14.50 = (4) 26.71 Therefore, John will have $26.71 later that night.

Question No.	Answer	Detailed Explanation
10	A	Year 1 - $12.00, Year 2 - $24.00. Year 3 - $36.00. Year 4 - $48.00. Year 5 - $60.00. Year 6 - $72.00. Year 7 - $84.00. Year 8 - $96.00. Year 9 - $108.00. Year 10 - $120.00 Adding the totals for each year, we get $660.00. $660.00 is the correct answer.
11	$-\dfrac{2}{7}$	Since the denominators are the same just add the numerators. $3 + \text{-}5 = \text{-}2$
12	A and C	$-\dfrac{6}{4} + \dfrac{3}{4}$ add the numerators and you get -3. So the fraction is $-\dfrac{3}{4}$ $\dfrac{1}{8} - \dfrac{7}{8} = 1 - 7 = \text{-}6$ and $\dfrac{\text{-}6}{8}$ simplifies to $\dfrac{\text{-}3}{4}$

Chapter 4:
Expressions and Equations

Lesson 1: Applying Properties to Rational Expressions

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ed Search   *Applying Properties to Rational Expressions*

URL	QR Code
http://www.lumoslearning.com/a/7eea1	

1. Ruby is two years younger than her brother. If Ruby's brother's age is A, which of the following expressions correctly represents Ruby's age?

    Ⓐ A - 2
    Ⓑ A + 2
    Ⓒ 2A
    Ⓓ 2 - A

2. Find the difference: 8n - (3n - 6) =

    Ⓐ -n
    Ⓑ 5n - 6
    Ⓒ 5n + 6
    Ⓓ 8n - 6

3. Find the sum:

    6t + (3t - 5) =

    Ⓐ 9t - 5
    Ⓑ 9t + 5
    Ⓒ 3t - 5
    Ⓓ 6t - 5

4. Combine like terms and factor the following expression.

    7x - 14x + 21x - 2

    Ⓐ 15x - 2
    Ⓑ 2(7x - 1)
    Ⓒ 42x - 2
    Ⓓ 21(x - 1)

5. Which of the following expressions is equivalent to:

    3(x + 4) - 2

    Ⓐ 3x + 10
    Ⓑ 3x + 14
    Ⓒ 3x + 4
    Ⓓ 3x + 5

6. **Simplify the following expression:**

$$\left(\frac{1}{2}\right) x + \left(\frac{3}{2}\right) x$$

Ⓐ 2x

Ⓑ $\left(\dfrac{5}{2}\right)$ x

Ⓒ - x

Ⓓ $\dfrac{x}{2}$

7. **Simplify the following expression:**

0.25x + 3 - 0.5x + 2

Ⓐ -0.25x + 5
Ⓑ 0.75x + 5
Ⓒ -0.25x + 1
Ⓓ 5.75x

8. **Which of the following statements correctly describes this expression?**

2x + 4

Ⓐ Four times a number plus two
Ⓑ Two more than four times a number
Ⓒ Four more than twice a number
Ⓓ Twice a number less four

9. **Which of the following statements correctly describes the following expression?**

$$\frac{2x - 3}{2}$$

    Ⓐ Half of three less than twice a number
    Ⓑ Half of twice a number
    Ⓒ Half of three less than a number
    Ⓓ Three less than twice a number

10. **Which of the following expressions is not equivalent to:**

$$(\frac{1}{2})(2x + 4) - 3$$

    Ⓐ $(x + 2) - 3$

    Ⓑ $(\frac{1}{2})(2x + 4) - 3$

    Ⓒ $x - 1$
    Ⓓ $x + 1$

11. **Which property is demonstrated in the following expression?**

    $12(3x - 9) = 36x - 108$

    Ⓐ Associative property
    Ⓑ Distributive property
    Ⓒ Identity property of addition
    Ⓓ Zero property of multiplication

12. **Rhonda is purchasing fencing to go around a rectangular lot which is 4x + 9 ft long and 3x - 5 ft wide. Which expression represents the amount of fencing she must buy?**

    Ⓐ $7x + 4$
    Ⓑ $7x - 4$
    Ⓒ $14x + 28$
    Ⓓ $14x + 8$

13. Rebekah is preparing for a swim meet. She is trying to swim 1 mile in 7 minutes. If the pool is 5x + 3 ft long, which expression represents how many laps she needs to swim in 7 minutes?

Assume 1 length of the pool is 1 lap. (1mile = 5280 feet.)

Ⓐ 7(5x + 3)

Ⓑ 5x + 3

Ⓒ $\dfrac{5280}{5x + 3}$

Ⓓ 5280(5x + 3)

14. Simplify.

5x + 10y + 0(z) =

Ⓐ 0

Ⓑ 5x + 10y

Ⓒ 15xy

Ⓓ 5x

15. Which property is demonstrated below?

2 + (8 + 3) = (2 + 8) + 3

Ⓐ Additive Identity Property

Ⓑ Multiplicative Identity Property

Ⓒ Distributive Property

Ⓓ Associative Property of Addition

16. Use the Distributive Property to expand the expression 6(5x – 3). Write your answer in the box given below.

17. Which expressions are equal to 60x - 24? There is more than one correct answer. Select all the correct expressions.

Ⓐ 10(6x - 2)

Ⓑ 4(10x - 6)

Ⓒ 5(12x - 5)

Ⓓ 6(10x - 4)

Ⓔ -6(-10x + 4)

Ⓕ 4(15x - 6)

18. **A bookstore is advertising \$2 off the price of each book. You decide to buy 8 books. Let p represent the price of each book. Use the expression 8(p – 2) to find out how much you would spend if the regular price of each book is \$13.**

Write your answer in the box given below.

Chapter 4: Expressions and Equations

Answer Key
&
Detailed Explanations

Lesson 1: Applying Properties to Rational Expressions

Question No.	Answer	Detailed Explanation
1	A	Remember: "Younger than" is a key phrase that will indicate subtraction. If A is the age of Ruby's brother, and she is 2 years younger than her brother. The correct expression is A - 2.
2	C	8n - (3n-6) = 8n - 3n + 6 = 5n + 6. 5n + 6 is the correct answer.
3	A	6t + (3t - 5) = Remove parentheses: 6t + (3t − 5) = 6t + 3t - 5. Now combine like terms: 6t + 3t − 5 = 9t − 5. 9t - 5 is the correct answer.
4	B	7x - 14x + 21x - 2. Here, I will combine like terms first. 7x - 14x + 21x = 14x. Now we have 14x − 2, which factors into 2(7x - 1). 2(7x - 1) is the correct answer.

5	A	Simplify the expression 3(x + 4) - 2
		Step 1: Multiply terms in parentheses by 3
		    3x+12-2
		Step 2: Combine like terms
		    3x+10

6	A	Simplify the expression $(\frac{1}{2})x + (\frac{3}{2})x$ Add the numerators of the fractions and keep the same denominators $(\frac{4}{2})x$ Simplify this fraction we get 2x.
7	A	Simplify the expression 0.25x + 3 - 0.5x + 2 by combining like terms Step 1: 0.25x - 0.5x + 3 + 2 Step 2: -0.25x + 5
8	C	Remember: Addition means more than and 2x represents multiplication, or times. The statement that represents the expression 2x + 4 is four more than two times a number.
9	A	Remember: A half can be represented by the fraction $\frac{1}{2}$, twice indicates multiplication, and less represents subtraction. Considering the numerator (2x-3), means 3 less than twice a number 'x'. Dividing this by half, we get half of three less than twice a number.

Question No.	Answer	Detailed Explanation
10	D	Simplify the expression $\frac{1}{2}$ (2x + 4) - 3 Step 1: Multiply terms in parentheses by $\frac{1}{2}$ (x+2) - 3 Step 2: Combine like terms (x - 1)
11	B	Distributive property is the correct answer. To remove parentheses, we must multiply the quantity outside parentheses to each term inside parentheses.
12	D	Perimeter = 2 • length + 2 • width 2(4x + 9) + 2(3x - 5) = 8x + 18 + 6x - 10 = 14x +8 ft. 14x + 8 is the correct answer.
13	C	5280 ft ÷ (5x + 3) ft represents the number of laps in 1 mile. 5280 / (5x + 3) is the correct answer.
14	B	5x + 10y + 0(z) = 5x + 10y When 0 is multiplied by any quantity, it produces 0; so 0(z) = 0. Then 5x + 10y + 0 = 5x + 10y 5x + 10y is the correct answer.
15	D	The associative property of addition states that the sum of 3 or more numbers is the same regardless how the numbers are grouped.
16	30x - 18	Distribute the six by multiplying 6 and 5x. Then multiply 6 by 3. Subtract the two products.
17	D, E, and F	D, E, and F are the correct options. Find a common factor between 60 and 24. Some common factors are 6 and 4. Divide the two numbers in the expression by the common factor. 60 divided by 6 is 10 and 24 divided by 6 is 4. Also 60 divided by 4 is 15 and 24 divided by 4 is 6. -6 can be a factor if you make sure to change the 10 to negative and the subtraction sign to a +.
18	$88	p=13 so 8(13-2) = 88.

Progress Chart

Standard	Lesson	Page No.	Practice		Mastered	Re-practice /Reteach
CCSS			Date	Score		
7.RP.A.1	Unit Rates	10				
7.RP.A.2.A	Understanding and Representing Proportions	14				
7.RP.A.2.B	Finding Constant of Proportionality	19				
7.RP.A.2.C	Represent Proportions by Equations	24				
7.RP.A.2.D	Significance of Points on Graphs of Proportions	29				
7.RP.A.3	Applying Ratios and Percents	37				
7.NS.A.1	Rational Numbers, Addition & Subtraction	55				
7.NS.A.1.B	Add and Subtract Rational Numbers	60				
7.NS.A.1.C	Additive Inverse and Distance Between Two Points on a Number Line	65				
7.NS.A.1.D	Strategies for Adding and Subtracting Rational Numbers	70				
7.NS.A.2	Rational Numbers, Multiplication and Division	74				
7.NS.A.2.B	Rational Numbers as Quotients of Integers	79				
7.NS.A.2.C	Strategies for Multiplying and Dividing Rational Numbers	84				
7.NS.A.2.D	Converting Between Rational Numbers and Decimals	89				
7.NS.A.3	Solving Real World Problems	93				
7.EE.A.1	Applying Properties to Rational Expressions	117				
7.EE.A.2	Interpreting the Meanings of Expressions	123				
7.EE.B.4	Modeling Using Equations or Inequalities	129				
7.EE.B.3	Solving Multi-Step Problems	133				
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Standard	Lesson	Page No.	Practice		Mastered	Re-practice /Reteach
CCSS			Date	Score		
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7.G.A.2	Drawing Plane (2-D) Figures	159				
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