

ISBN 978-0-7609-8909-8 ©2014—Curriculum Associates, LLC North Billerica, MA 01862 Permission is granted for reproduction of this book for school/home use. All Rights Reserved. Printed in USA. 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

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For the Teacher

What is Ready® Assessments, Mathematics?

Ready[®] **Assessments, Mathematics** is a series of three assessments that assess the Common Core Mathematics standards and help prepare students to demonstrate their mastery of the Common Core.

The item rigor and test structure of **Ready Assessments** were informed by analysis of materials from the Smarter Balanced and PARCC testing consortia, as well as New York and North Carolina departments of education—all leading organizations in the development of next-generation assessments.

How does *Ready Assessments* correlate to the Common Core State Standards for Mathematics?

Each of the three *Ready Assessments* address key skills in the following Common Core Mathematics strands:

- Operations and Algebraic Thinking
- Number and Operations in Base Ten
- Number and Operations—Fractions
- Measurement and Data
- Geometry

Each assessment question correlates directly to one or more CCSS standards for mathematical content. These correlations are given on the Answer Key and Correlations charts on pages 19–24, which also shows the Depth of Knowledge (DOK) rating for each item.

Ready Teacher Toolbox

If you subscribe to **Ready Teacher Toolbox** (http://www.teacher-toolbox.com/), you can project **Ready Assessments** items in front of the class and review them together. You also have access to **Ready Instruction** lessons, Tools for Instruction, and Guided Interactive Tutorials.

When should I administer *Ready Assessments, Mathematics* ?

Use the three assessments throughout the year to benchmark student progress. Alternatively, you can use all or specific items of an assessment as homework or review of specific standards. Use the correlation charts beginning on page 13 to identify standard alignments for items.

How do I introduce my students to *Ready®* Assessments, Mathematics ?

Let students know that this assessment may differ from assessments they've taken in the past. Tell students that they will need to answer two kinds of questions:

- Selected-response, which give a number of possible answers to choose from. Some questions may have five or more answers to choose from, and some will have more than one correct answer.
- Constructed-response, which ask students to write the answer.

Additionally, many items have multiple parts, which may combine different kinds of questions.

Selected- and constructed-response items should be completed within the assessment booklet itself. Ensure that each student knows how to fill in the answer bubbles for all types of answer choices. See page 4 for examples to photocopy and review with students.

Inform students of the amount of time they will have to complete the assessment. Students should complete one assessment of the *Ready Assessments* in two days. Allow approximately 60 minutes per day.

How do I administer each assessment?

- 1. Provide each student with a student book and two sharpened No. 2 pencils with a good eraser.
- 2. Have students read the introduction on the inside front cover of the student book. Read aloud and discuss the tips for answering selected-response questions.
- 3. Remind students to answer the selected- and constructed-response items within the assessment booklet.
- 4. Have students remove the answer form and fill in the personal information section. Ensure that each student knows how to fill in the answer bubbles for all types of answer choices. Remind students that if they change an answer, they should fully erase their first answer.

What is the correction procedure?

Score the selected-response items using either the Answer Key on pages 19–24 or the completed Answer Forms on pages 5–7 of this teacher guide. Score the constructed-response items using the Answers to Constructed-Response Questions on pages 8–12.

Once students have covered a significant portion of the **Ready Mathematics Instruction** program, you may wish to correct the assessment orally after completion. If so, review the answers, explaining concepts that students may not fully understand, and encourage them to discuss the thought process they used to answer the questions.

Machine-Scoring Guidelines

The selected-response questions in each **Ready Assessments** assessment collectively assess all grade-level standards. To capture the constructedresponse scores, fill in the appropriate score on each student's answer form in the "Teacher Use Only" box for each item.

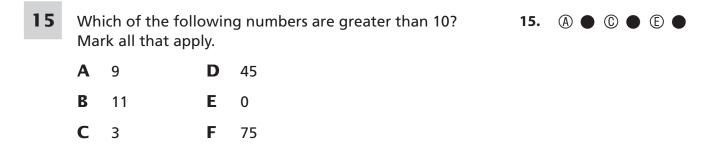
How should I use the results of *Ready* Assessments, Mathematics ?

Ready Assessments can be a useful diagnostic tool to identify standards that need further study and reinforcement. Use the **Ready Assessments** Answer Key and Correlations, beginning on page 19, to identify the standard that each question has been designed to evaluate. For students who answer a question incorrectly, provide additional instruction and practice through **Ready Mathematics Instruction**. For a list of the Common Core State Standards that **Ready Assessments** assess, see the correlation chart beginning on page 13.

Innovative Item Type Examples

To familiarize students with the innovative item types in *Ready Assessments* and where to record their answers, it may be especially helpful to display and review these examples:

• Multiple correct: One or more answer choices may be correct. There may be as many as 10 choices to pick from. The student fills in the appropriate bubbles on the answer form (see example at right).

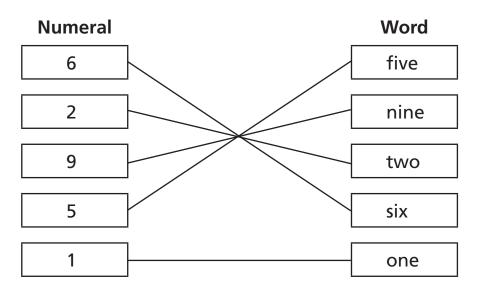


• Constructed response: The student writes out the answer in the assessment booklet, often needing to show work in order to receive full credit. These items are often multi-part, indicated by "Part A, Part B," and so on.

15

Part A

Draw lines to match each number with the correct word form.



Part B

Write the numbers above in order from least to greatest.

1, 2, 5, 6, 9

	1	Ready®	Assessments, Mathematics , Level 5 Answer Form	
	ne			
	her			Grade
SCHC	pol		City	State
			Assessment 1	
1 A .	● B C ●	21.	See page 8.	Record student scores for
1 B .		22.	(A) (B) (C) ●	constructed-response items in the "For Teacher Use Only" box on the
2A.		23.	(A) (B) (C) ●	student Answer Form.
2B.		24.	See page 9.	
3.	$(A) \oplus (C) \oplus (A)$	25.		
	See page 8.	26.	• B C D	
5.	See page 8.	27.		
6.	● B C ● E	28.	See page 9.	
		29.	• B C D	
	See page 8.	30.	See page 9.	
о. 9А.		31.	(A) (B) (C) ●	
		32.	See page 9.	
10.	• B C D	33.	A ● C D E F G	
11 A .	• B C D	34.	See page 9.	
11 B .	$(A) \bullet (C) \bullet (A)$	35.	(A) (B) ● (D)	
12.	See page 8.	36.	See page 9.	
13.	• B C D	37.	A B C ●	
14.	A B C ●	38.	• B C •	
15A.		39.	• 8 C D	
		40.	See page 9.	
	See page 8.			
17.				
18.				
17D.				

20. See page 8.

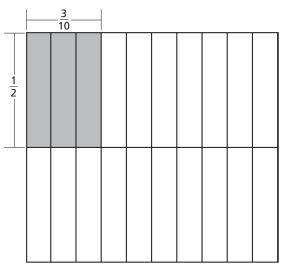
		Ready®.	Assessments, Mathematics , Level 5 Answer Form	
Nam	ne			
				Grade
Scho	ool		City	State
			Assessment 2	
1A.	• • © • E	21.	● ⑧ ① ●	Record student scores for
1 B .		22.		constructed-response items in the "For Teacher Use Only" box on the
2A.		23.		student Answer Form.
2B.		24.	See page 10.	
3.		25.	A B C ●	
4.	See page 9.	26A.		
5A. 5B.		26B.	A B C ●	
6.		27.	(A) (B) ● (D)	
о. 7.		28.	See page 10.	
8.	See page 9.	29A.		
9.	See page 9.	29B.		
10.	● B C D	30.		
11.		31.		
12.	See page 9.	32.	See page 10.	
13A.		33.		
		34.	▲ ⓑ ⓒ ●	
14.	• B C D	35.	See page 10.	
15.		36.	See page 10.	
16.	See page 9.	37.		
17.		38.	See page 10.	
18.		39.		
19.	See page 9.	40.	See page 11.	
20.	See page 10.			

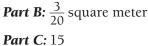
		Ready®	Assessments, Mathematics , Level 5 Answer Form	
Nam	ne			
				Grade
Scho	ool		City	State
			Assessment 3	
1A.		21.		Record student scores for
1B.		22.	A B C ●	constructed-response items in the "For Teacher Use Only" box on the
2A.		23.	See page 12.	student Answer Form.
2B.		24.	See page 12.	
3.	(A) (B) ● (D)	25.		
4.	See page 11.	26A.	 A B C ● 	
5.		26B.		
6.	See page 11.	27A.	0 0 0 0	
7.	(A) (B) (C) ●	27B.		
8.	See page 11.	28.	See page 12.	
9.	(A) (B) ● (D)	29.	See page 12.	
10.		30.		
11.		31A.		
12.	See page 11.			
13A.			See page 12.	
13B.		33A. 33B.		
14.		34.		
15.		35.		
16.	See page 12.	36.	See page 12.	
17.		37.		
18.		38.	See page 12.	
19.		39.		
20.	See page 12.	40.	See page 12.	

Assessment 1 pages 1–29

Assign 1 point for each Part, except where otherwise noted. For 2-point Parts, assign 1 point for correct answer/solution and 1 point for valid reasoning/ equations.

4. *Part A*: Possible student model:





Part D: $\frac{15}{100}$ m²; Sample work: Area of Square = $\frac{1}{10}$ m × $\frac{1}{10}$ m = $\frac{1}{100}$ m² Area of Mat = 15 squares × $\frac{1}{100}$ m² = $\frac{15}{100}$ m² Sample explanation: The area is the same because $\frac{15}{100}$ can be reduced to $\frac{3}{20}$.

5. 3,360

8. Part A: \$25.50

Part B: [2 points] \$499.80

12. *Part A:* No; Possible explanation: Amy's estimate is not accurate because $\frac{1}{7}$ is less than both $\frac{1}{3}$ and $\frac{1}{4}$, so the sum of $\frac{1}{3}$ and $\frac{1}{4}$ would be much greater than $\frac{1}{7}$. *Part B:* $\frac{5}{12}$ of her time

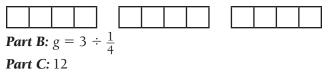
Part C: Possible explanation: Amy spent $\frac{7}{12}$ of her time working on her math and science homework, and she spent $\frac{5}{12}$ of her time working on her history homework. Since the fractions have the same denominator, you can just compare the numerators. Since 7 > 5, Amy spent more time working on her math and science homework than her history homework.

16. *Part A:* No; Possible explanation: In the expression $6 \times 4 + 5$, 6 is first multiplied by 4 and the product is added to 5.

Part B: Possible response: $6 \times (4 + 5), (4 + 5) \times 6$; Possible explanation: Both expressions represent the product of 6 and the sum of 4 and 5. The value of each expression is the same—54.

Part C: Possible explanation: Parentheses can change the value of an expression if addition or subtraction needs to happen before multiplication or division. For example, parentheses are needed to multiply the sum of 4 and 5 by 6: $(4 + 5) \times 6$. Parentheses would not be needed if you needed to add a product to another number, such as adding 4 to the product of 5 and 6: $4 + 5 \times 6$.

20. *Part A:* Possible response:



21. 90

- **24.** *Part A*: 2,240 cubic feet *Part B*: [2 *points*] 640 cubic feet
- **28.** *Part A*: 589.26 *Part B*: 10; 1; $\frac{1}{10}$; $\frac{1}{100}$; $\frac{1}{1,000}$; 58.926

Part C: Possible explanation: You can divide a number by 10 by decreasing the place value of each digit by one place. This means each digit will move one place value to the right.

Part D: 14.278; Sample work: 142.78 ÷ 10 = 1 $\left(\frac{100}{10}\right)$ + 4 $\left(\frac{10}{10}\right)$ + 2 $\left(\frac{1}{10}\right)$ + 7 $\left(\frac{1}{100}\right)$ + 8 $\left(\frac{1}{1,000}\right)$ = 14.278

30. 20 cm \div 100 = 0.2 m

Volume = $l \times w \times h$

- $= 3 \times 3 \times 0.2$
- = 1.8 cubic meters

1.8 < 2, so Owen does have enough s and to fill the sandbox.

32. Part A: [2 points] Tayshaun; 2; Jackie

Part B: [2 points] 3; 6; Jackie

Part C: [2 points] 17; 19

34. *Part A:* [1 *point*] Drawing should show a rectangle with diagonals drawn. Lengths of diagonals may be included.

Part B: [2 points; 1 point for correct conclusion, 1 point for valid reasoning] Yes, diagonals of any square must be the same length because all squares are rectangles.

36. *Part A:* Possible explanation: The product 4.26×10^5 is greater. I estimated this is greater because the 10 has a greater exponent.

Part B: 10⁴

Part C: The place values of the digits in a number will increase the same number of places as the exponent in the power of 10.

Part D: 4,260; 426,000

40. Part A: [2 points] lower; 134

Part B: Possible explanation: Yes, Andre is right. The volume of the first room is 90 cubic feet, and the volume of the second room is 224 cubic feet. To find the total volume of the tree fort, you should add 90 and 224 to get 314 cubic feet. Molly multiplied 90 and 224, which is incorrect.

Assessment 2 pages 30-61

Assign 1 point for each Part, except where otherwise noted. For 2-point Parts, assign 1 point for correct answer/solution and 1 point for valid reasoning/ equations.

- 4. Part A: w = 6.88 4.96
 Part B: 1.92
 Part C: 3.04
- 8. Part A: 165

Vo

Part B: 660

Part C: No; Possible explanation: The width cannot be covered by complete $\frac{3}{4}$ -inch tiles with no gaps or overlaps. 7 tiles would be $5\frac{1}{4}$ inches and 8 tiles would be 6 inches.

9. $30 \text{ cm} \div 100 = 0.3 \text{ m}$

$$lume = l \times w \times h$$

$$= 4 \times 2 \times 0.3$$

2.4 > 2, so Maeve does not have enough soil to fill the garden bed.

- 12. Part A: 31,500Part B: 56,700Part C: 25,200
- 16. Part A: [2 points]

Competitor	Second Jump	Third Jump
Kara	$4\frac{1}{4}$ feet	$4\frac{5}{12}$ feet
Abby	$4\frac{1}{6}$ feet	$4\frac{2}{3}$ feet

Part B: [2 points] Kara, $\frac{1}{12}$ **Part C:** [2 points] Abby, $\frac{1}{6}$

19. 2.34

20. Part A: 2, 4, 6, 8

Part B: 4, 8, 12, 16

Part C: 2

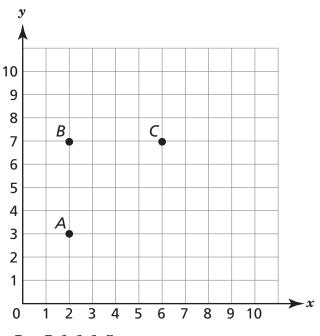
Part D: Possible explanation: No, the relationship from Part C would not have been true if Meg's first number and Theo's first number were not 0. For example, if Meg's first number and Theo's first number were 1, then Meg's second number would have been 3, and Theo's second number would have been 5. Five is not 2 times 3, so the relationship does not hold.

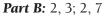
24. *Part A*: >, <, can

Part B: >, =, cannot

Part C: Possible explanation: A box of cereal that can be sold is one with 16.131 ounces of cereal, because 16.131 > 16.118 and 16.131 < 16.134. A box of cereal that cannot be sold is one with 16.115 ounces of cereal, because 16.115 < 16.118 and 16.115 < 16.118 and 16.115 < 16.134.

28. *Part A*: Possible student grid:





Part C: Possible explanation: Vernon should plot Point *D* at (6, 3). A square has all sides the same length and the corners are right angles. The distance from *A* to *B* and from *B* to *C* is 4 units. To make a right angle and a side parallel to *AB*, go 4 units down from Point *C* to (6, 3) which is also 4 units right of Point *A*, and makes a side *AD* that is parallel to *BC* and perpendicular to *CD*. **32.** *Part A:* Possible explanation: Greg is not correct because he did not compare numbers in the same form. $\frac{37}{2}$ is equivalent to $18\frac{1}{2}$, which is less than 19. *Part B:* Possible explanation: Greg's list is correct because he ordered products with a common factor by comparing the non-common factors in the same form.

Part C: [2 points] Possible explanation: Greg should put $18 \times 19\frac{1}{2}$ at the end of the list because it will be greater than $18 \times \frac{37}{2}$ since $19\frac{1}{2}$ is greater than $\frac{37}{2}$.

35. *Part A:* [1 *point*] Drawing should show a parallelogram. Side lengths may be included.

Part B: [2 points; 1 point for correct conclusion, 1 point for valid reasoning] Yes, rhombi all have two pairs of opposite sides the same length because they are all parallelograms.

36. *Part A*: 32.2, 32.16

Part B: tenth, hundredth

Part C: Possible explanation: No, the answer for Part B will not be true for any decimal. The reason why it was true for 32.158 is because when the number was rounded to the nearest tenth, it was rounded up. However, not all numbers are rounded up when rounded to the nearest tenth. For example, 45.326 would be rounded down to 45.3. When rounded to the nearest hundredth, it would become 45.33, so the number rounded to the nearest hundredth is greater than the number rounded to the nearest tenth.



40. **Part A:** 18

Part B: Possible explanation: The volume of Michael's prism could have been any number of cubic units slightly higher than 18 cubic units. This is because the 18 unit cubes that Michael used took up 18 cubic units of space, and the small gaps between some of the unit cubes took up some additional space.

Part C: 22

Part D: Possible explanation: The volume of Sue's prism could have been any number of cubic units slightly lower than 22 cubic units. This is because the 22 unit cubes that Sue used would have taken up 22 cubic units of space if they had not overlapped, but because they overlapped, some of the space inside the prism was taken up by more than one unit cube.

Assessment 3 pages 62–92

Assign 1 point for each Part, except where otherwise noted. For 2-point Parts, assign 1 point for correct answer/solution and 1 point for valid reasoning/ equations.

4. *Part A:* Possible explanation: Yes, all squares have four right angles, because all rectangles have four right angles, and all squares are rectangles.

Part B: Possible explanation: Yes, all squares have two pairs of parallel sides, because all parallelograms have two pairs of parallel sides, all rectangles are parallelograms, and all squares are rectangles.

Part C: No; Possible explanation: All rectangles are not squares, so not all rectangles have the properties of squares, such as four sides the same length.

- **6.** 84
- **8.** *Part A*: 46 inches *Part B*: $19\frac{1}{2}$ feet

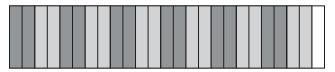
Part C: $4\frac{1}{3}$ yards

12. Part A: Possible diagram:



between 8 and 9 kilometers

Part B: $8\frac{1}{3}$ kilometers **Part C:** Possible diagram:



 $12\frac{1}{2}$ kilometers

Part D: No; Possible explanation: Shonice ran $12\frac{1}{2}$ kilometers in the same time that Amber ran $8\frac{1}{3}$ kilometers. $12\frac{1}{2}$ is not twice $8\frac{1}{3}$.

16. *Part A:* Box A; Volume of Box A = 12 × 12 × 24 = 3,456 cubic inches; Volume of Box B = 12 × 16 × 16 = 3,072 cubic inches; 3,456 > 3,072

Part B: [2 points] No; Possible explanation: The presents have a total height of 9 + 6 = 15 inches and a length of 15 inches, which won't fit in the dimension of Box A.

Part C: 804; Volume of the presents = $(9 \times 12 \times 6) + (12 \times 15 \times 9) = 648 + 1,620 =$ 2,268 cubic inches; 3,072 - 2,268 = 804

Part D: Possible answer: $V = (s \times s \times s) - 2,268$

Part E: 1,107 cubic inches; V = (15 × 15 × 15) - 2,268 = 1,107

20. *Part A*: 5

Part B: Possible explanation: When you multiply 8 by 10⁵, you get 800,000. The decimal point is after the last zero, so there are 5 zeros before the decimal point. There will always be 5 zeros before the decimal point when you multiply a whole number by 10⁵, except when the number has one or more zeros in it. For example, if you multiply 80 by 10⁵, there will be 6 zeros before the decimal point.

Part C: 4

Part D: Possible answer: When you divide 8 by 10⁵, you get 0.00008. There are 4 zeros after the decimal point. There will always be 4 zeros after the decimal point when you divide a one-digit number by 10⁵, but not when the number has more than one digit. For example, if you divide 80 by 10⁵, there will be 3 zeros before the decimal point.

23. 10 cm \div 100 = 0.1 m

Volume = $l \times w \times h$

 $= 8 \times 6 \times 0.1$

= 4.8 cubic meters

4.8 < 5, so Meg can afford the concrete for the basketball court.

24. *Part A*: $\frac{1}{6}$

Part B: [2 points] 8

28. *Part A*: 12,800

Part B: [2 points] 40, 40, 8 or 40, 80, 4

29. 32

32. Part A: hundredths, thousandths

Part B: Possible explanation: The 5 has a greater place value in the number 203.45 because its place is farther left than the place of the 5 in 203.405. Or, the 5 in 203.45 has a greater place value because it is in the hundredths, but the 5 in 203.405 is in the thousandths. A hundredth is ten times as great as a thousandth.

Part C: 10, $\frac{1}{10}$

36. *Part A:* Possible explanation: The students have eaten the macaroni and cheese from 3 out of the 5 trays. The expression can represent $\frac{3}{5}$ trays of 250 servings of macaroni and cheese.

Part B: [2 points] Possible explanation: Both are correct. Jamie: $(3 \times 250) \div 5 = 750 \div 5 = 150$ Mary: $(250 \div 5) \times 3 = 50 \times 3 = 150$

38. *Part A:* [1 *point*] Drawing should show a parallelogram. Angle measures may be included.

Part B: [2 points; 1 point for correct conclusion, 1 point for valid reasoning] Drawing should show a trapezoid. No, not all trapezoids are parallelograms, so not all trapezoids will have the same properties as parallelograms. A trapezoid could have 0 pairs or 1 pair of opposite sides that are the same length.

40. Part A:



or any other valid visual model

Part B:
$$\frac{2}{5} \times \frac{2}{2} = \frac{4}{10}$$
;
 $\frac{1}{2} \times \frac{5}{5} = \frac{5}{10}$;
 $\frac{4}{10} + \frac{5}{10} = \frac{4+5}{10} = \frac{9}{10}$

Part C: [2 points] Possible explanation: Luke's house could be as far as $\frac{9}{10}$ mile or as close as $\frac{1}{10}$ mile from the mall. Student could draw a line diagram and use points to represent the mall, house, and library. The farthest distance is $\frac{2}{5} + \frac{1}{2} = \frac{9}{10}$ mile and shortest distance is $\frac{1}{2} - \frac{2}{5} = \frac{1}{10}$ if Luke went past his house from the library to the mall.

Correlation Charts

Standards Coverage by Ready® Assessments, Mathematics

The chart below correlates each Common Core State Standard to the **Ready® Assessments**, **Mathematics** item(s) that assess it, and to the instruction lesson(s) that offer(s) comprehensive instruction on that standard. Use this chart to determine which lessons your students should complete based on their mastery of each standard.

			Ready	[®] Instructio	n and Asse	ssments	
Common Core State Standards for Grade 5 —			Assessm	Assessments Item Number(s)			
	Mathematics Standards	Emphasis	Assessment 1	Assessment 2	Assessment 3	Instruction Lesson(s)	
Operation	ns and Algebraic Thinking						
Write and	interpret numerical expressions.						
5.0A.A.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	Supporting/ Additional	7	_	14	19	
5.OA.A.2	7		6, 16	3, 6	5, 25	19	
Analyze p	atterns and relationships.						
5.OA.B.3			18	14, 20		20	
Number a	and Operations in Base Ten			<u>^</u>			
Understan	d the place value system.						
5.NBT.A.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $\frac{1}{10}$ of what it represents in the place to its left.	Major	31	30	3, 32	1	
5.NBT.A.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	Major	13, 36	10	20, 30	2	
5.NBT.A.3	Read, write, and compare decimals to thousandths.	Major	_		_	3, 4	

The Standards for Mathematical Practice are integrated throughout the instructional lessons.

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			Ready	[®] Instructio	n and Asse	ssments
Common Core State Standards for Grade 5 —			Assessm	ents Item Nu	umber(s)	
	Mathematics Standards	Emphasis	Assessment 1	Assessment 2	Assessment 3	Instruction Lesson(s)
Number a	and Operations in Base Ten (continued)			A		
Understan	d the place value system. (continued)					
	5.NBT.A.3a Read and write decimals to thousandths					
	using base-ten numerals, number names,					
	and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (\frac{1}{10}) + 9 \times (\frac{1}{100}) + 2 \times (\frac{1}{1000}).$	Major	25, 28	15, 36	—	3
	5.NBT.A.3b Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	Major	_	24, 26	10	4
5.NBT.A.4	Use place value understanding to round decimals to any place.	Major	2	37	2	4
Perform o	perations with multi-digit whole numbers and w	vith decimals	to hundred	ths.		
5.NBT.B.5	Fluently multiply multi-digit whole numbers using the standard algorithm.	Major	11	13	31	5
5.NBT.B.6	Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Major	21	_	12, 15	6
5.NBT.B.7			8	4, 19	_	7, 8, 9
Number a	and Operations—Fractions					
Use equiva	alent fractions as a strategy to add and subtract	fractions.				
5.NF.A.1	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$. (In general, $\frac{a}{b} + \frac{c}{d} = \frac{(ad + bc)}{bd}$.)	Major	39	27	37	10
5.NF.A.2			3, 12	16, 39	35, 40	11

			Ready	[®] Instructio	on and Asse	ssments	
Commo	on Core State Standards for Grade 5 —	Content	Assessm	Assessments Item Number(s)			
	Mathematics Standards	Emphasis	Assessment 1	Assessment 2	Assessment 3	Instruction Lesson(s)	
Number	and Operations—Fractions (continued)						
Apply and	l extend previous understandings of multiplica	tion and divis	ion.				
5.NF.B.3	Interpret a fraction as division of the numerator by the denominator $\left(\frac{a}{b} = a \div b\right)$. Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret $\frac{3}{4}$ as the result of dividing 3 by 4, noting that $\frac{3}{4}$ multiplied by 4 equals 3, and that when 3 wholes are shared equal among 4 people each person has a share of size $\frac{3}{4}$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person ge Between what two whole numbers does your answer lie	?	26, 20	11	39	12	
5.NF.B.4	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.	r Major	-	_	_	13, 14	
	5.NEB.4a Interpret the product $\left(\frac{a}{b}\right) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. For example, use a visual fraction model to show $\left(\frac{2}{3}\right) \times 4 = \frac{8}{3}$, and create a story context for this equation. Do the same with $\left(\frac{2}{3}\right) \times \left(\frac{4}{5}\right) = \frac{8}{15}$. (In general, $\left(\frac{a}{b}\right) \times \left(\frac{c}{d}\right) = \frac{ac}{bd}$.)	Major	33		11, 36	13	
	5.NF.B.4b Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	Major	4, 10	8, 34	19	14	
5.NF.B.5	Interpret multiplication as scaling (resizing), by:	Major	_	—	_	15	
	5.NF.B.5a Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.	Major	23	32	33	15	

Common Core State Standards for Grade 5 — Mathematics Standards

	Ready [®] Instruction and Assessments					
Content	Assessm	ents Item Nu	mber(s)	.		
Emphasis	Accoccmont	Accoccmont	Accoccmont	Instruction		

	Math	ematics Standards	Linpitasis	Assessment 1	Assessment 2	Assessment 3	Lesson(s)
	*	tions—Fractions (<i>continued</i>) evious understandings of multiplication	on and divisi	ion. (continu	ed)		
	5.NF.B.5b	Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $\frac{a}{b} = \frac{(n \times a)}{(n \times b)}$ to the effect of multiplying $\frac{a}{b}$ by 1.	Major	35	23		15
5.NF.B.6	of fractions	vorld problems involving multiplication and mixed numbers, e.g., by using visual odels or equations to represent the problem.	Major	37	31	18	16
5.NF.B.7	to divide u	extend previous understandings of division nit fractions by whole numbers and whole y unit fractions. ¹	Major	_	_	_	17, 18
	5.NF.B.7a	Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $\left(\frac{1}{3}\right) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $\left(\frac{1}{3}\right) \div 4 = \frac{1}{12}$ because $\left(\frac{1}{12}\right) \times 4 = \frac{1}{3}$.	Major	_	7	13	17
	5.NF.B.7b	Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div \left(\frac{1}{5}\right)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div \left(\frac{1}{5}\right) = 20$ because $20 \times \left(\frac{1}{5}\right) = 4$.	Major	17	25	_	17
	5.NF.B.7c	Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share $\frac{1}{2}$ lb of chocolate equally? How many $\frac{1}{3}$ -cup servings are in 2 cups of raisins?	Major	27		24, 29	18

¹ Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade.

			Ready	[®] Instructio	n and Asse	ssments
Commo	on Core State Standards for Grade 5 —					
	Mathematics Standards		Assessment 1	Assessment 2	Assessment 3	Instruction Lesson(s)
Measure	nent and Data			<u>.</u>		
Convert li	ke measurement units within a given measureme	ent system.				
5.MD.A.1	Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.	Supporting/ Additional	1, 30	9, 38	1, 8, 23	21, 22
Represent	and interpret data.					
5.MD.B.2	Make a line plot to display a data set of measurements in fractions of a unit $(\frac{1}{2}, \frac{1}{4}, \frac{1}{8})$. Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.	Supporting/ Additional	19, 32	2	26	23
Geometric	e measurement: understand concepts of volume.					
5.MD.C.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement.	Major	_	—	—	24
	5.MD.C.3a A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.	Major	_	17	17	24
	5.MD.C.3b A solid figure which can be packed without gaps or overlaps using <i>n</i> unit cubes is said to have a volume of <i>n</i> cubic units.	Major	38	40	34	24
5.MD.C.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	Major	14	29	7	25
5.MD.C.5	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.	Major	_	—	_	25, 26, 27
	5.MD.C.5a Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.	Major	22	1	_	25, 26
	5.MD.C.5b Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.	Major	24	12	21, 28	26
	5.MD.C.5c Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.	Major	40	22	6, 16	27

Ready[®] Instruction and Assessments Common Core State Standards for Grade 5 -Content Assessments Item Number(s) Instruction Emphasis **Mathematics Standards** Assessment Assessment Assessment Lesson(s) 2 3 1 Geometry Graph points on the coordinate plane to solve real-world and mathematical problems. Use a pair of perpendicular number lines, called axes, 5.G.A.1 to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number Supporting/ 34 28, 33, 35 9,38 28 indicates how far to travel from the origin in the Additional direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate). Represent real world and mathematical problems by 5.G.A.2 Supporting/ graphing points in the first quadrant of the coordinate 9 27 29 plane, and interpret coordinate values of points in the Additional context of the situation. Classify two-dimensional figures into categories based on their properties. 5.G.B.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all Supporting/ subcategories of that category. For example, all 29 18 4 30 Additional rectangles have four right angles and squares are rectangles, so all squares have four right angles. Supporting/ 5.G.B.4 Classify two-dimensional figures in a hierarchy based 15 5 22 31 on properties. Additional

Ready® Assessments, Mathematics Answer Key and Correlations

The charts below show the answers to multiple-choice items in the **Ready®** Assessments, Mathematics assessment, plus the depth-of-knowledge (DOK) index, primary standard, additional standard(s), and corresponding **Ready®** Mathematics Instruction lesson(s) for every item. For selected-response items, score 1 point for each stand-alone item or each Part of a multi-part item; see scoring information in Answers to Constructed-Response Questions beginning on page 8. Use this information to adjust lesson plans and focus remediation.

	Assessment 1								
Question	Key	DOK	SMP	Primary Standard	Additional Standard(s)	Ready [®] Mathematics Instruction Lesson(s)			
1	Part A: A and D Part B: A and C	1	7	5.MD.A.1	5.NBT.B.7, 5.NF.B.6	21, 22			
2	Part A: A Part B: B and D	1	7, 8	5.NBT.A.4	_	4			
3	В	2	4, 5	5.NF.A.2	—	11			
4	See page 8.	3	2, 3, 5, 6	5.NF.B.4b	5.NF.B.6	14			
5	See page 8.	1	5	5.MD.C.5b	5.NBT.B.5	26			
6	A and D	1	—	5.OA.A.2	_	19			
7	Part A: C Part B: B	1	_	5.OA.A.1	_	19			
8	See page 8.	2	4, 5, 7	5.NBT.B.7	_	7, 8, 9			
9	Part A: A and D Part B: B and D	2	5	5.G.A.2	5.G.A.1	29			
10	А	1	5	5.NF.B.4b	—	14			
11	Part A: A Part B: B	1	6, 8	5.NBT.B.5	_	5			
12	See page 8.	3	2, 3, 5, 6, 7	5.NF.A.2	_	11			
13	А	2	2	5.NBT.A.2	_	2			
14	D	1	_	5.MD.C.4	5.MD.C.3b	25			
15	Part A: B and C Part B: A and B	2	3, 6	5.G.B.4	5.G.B.3	31			
16	See page 8.	3	3, 6, 7	5.OA.A.2	5.0A.A.1	19			
17	С	2	2, 4	5.NF.B.7b	_	17			
18	А	2	2, 3, 7	5.OA.B.3	_	20			
19	Part A: D Part B: B and D	2	5	5.MD.B.2	5.NF.A.2	23			
20	See page 8.	2	1, 4, 5	5.NF.B.3	5.NF.B.7b	12			
21	See page 8.	2	2, 7	5.NBT.B.6	—	6			
22	D	2	5	5.MD.C.5a	5.MD.C.3b	25, 26			
23	D	3	3, 8	5.NF.B.5a	_	15			
24	See page 9.	2	4, 5, 7	5.MD.C.5b	5.NBT.B.5	26			
25	В	1	5	5.NBT.A.3a	—	3			
26	А	3	3	5.NF.B.3	5.NBT.B.6	12			
27	B and D	2	2, 7	5.NF.B.7c	5.NF.B.6	18			
28	See page 9.	3	3, 7, 8	5.NBT.A.3a	5.NBT.A.1	3			
29	А	2	2, 6	5.G.B.3	—	30			

Assessment 1 (continued)							
Question	Key	DOK	SMP	Primary Standard	Additional Standard(s)	Ready [®] Mathematics Instruction Lesson(s)	
30	See page 9.	2	1, 2, 7	5.MD.A.1	5.MD.C.5b, 5.NBT.A.3b, 5.NBT.B.7	31, 32	
31	D	2	6, 7	5.NBT.A.1	—	1	
32	See page 9.	2	4, 5	5.MD.B.2	5.NF.A.2	23	
33	В	2	4,7	5.NF.B.4a	—	13	
34	See page 9.	3	3	5.G.A.1	—	28	
35	С	2	3, 7, 8	5.NF.B.5b	—	15	
36	See page 9.	3	3, 7, 8	5.NBT.A.2	5.NBT.A.3b	2	
37	D	2	5,7	5.NF.B.6	—	16	
38	A and D	1	2, 4	5.MD.C.3b	—	24	
39	А	2	1	5.NF.A.1		10	
40	See page 9.	3	2, 3, 5, 6	5.MD.C.5c	5.MD.C.5b	27	

	Assessment 2						
Question	Кеу	DOK	SMP	Primary Standard	Additional Standard(s)	Ready [®] Mathematics Instruction Lesson(s)	
1	Part A: A, B, and D Part B: B	2	4, 7	5.MD.C.5a	5.MD.C.3b, 5.MD.C.5b	25, 26	
2	Part A: C Part B: B and D	2	5	5.MD.B.2	5.NF.A.2	23	
3	В	2	4	5.OA.A.2	_	19	
4	See page 9.	2	4, 5, 7	5.NBT.B.7	_	7, 8, 9	
5	Part A: A and D Part B: C and D	2	3, 6	5.G.B.4	5.G.B.3	31	
6	A and E	1	_	5.OA.A.2	_	19	
7	А	2	2, 4	5.NF.B.7a	5.NF.B.7c	17	
8	See page 9.	3	2, 3, 5, 6	5.NF.B.4b	_	14	
9	See page 9.	2	1, 2, 7	5.MD.A.1	5.MD.C.5b, 5.NBT.A.3b, 5.NBT.B.7	21, 22	
10	А	2	8	5.NBT.A.2	_	2	
11	С	1	_	5.NF.B.3	_	12	
12	See page 9.	2	4, 5, 7	5.MD.C.5b	5.NBT.B.5	26	
13	Part A: A, C, and D Part B: D	2	2	5.NBT.B.5	_	5	
14	А	2	2	5.OA.B.3	5.NBT.B.5	20	
15	В	1	4	5.NBT.A.3a	_	3	
16	See page 9.	2	1, 4, 5	5.NF.A.2		11	
17	С	1	6	5.MD.C.3a	_	24	
18	В	2	3, 6	5.G.B.3	5.G.B.4	30	
19	See page 9.	1	2	5.NBT.B.7	_	7, 8, 9	
20	See page 10.	3	3, 6, 8	5.OA.B.3		20	
21	A and D	2	3, 7, 8	5.NF.B.5a	_	15	
22	B and C	2	4	5.MD.C.5c	5.MD.C.5b	27	
23	С	2	4,7	5.NF.B.5b	_	15	
24	See page 10.	2	4,7	5.NBT.A.3b	_	4	
25	D	1	4,6	5.NF.B.7b	_	17	
26	Part A: C and D Part B: D	2	1, 2, 7	5.NBT.A.3b	_	4	
27	С	2	1	5.NF.A.1	_	10	
28	See page 10.	3	2, 3, 5, 6	5.G.A.1	5.G.A.2	28	
29	Part A: C Part B: A, B, and D	2	5	5.MD.C.4	5.MD.C.3b, 5.MD.C.5b	25	
30	В	2	7	5.NBT.A.1	_	1	
31	А	2	1	5.NF.B.6	5.NF.A.2	16	
32	See page 10.	3	3, 6, 7, 8	5.NF.B.5a	_	15	
33	В	1	5	5.G.A.1	İ _	28	

Assessment 2 (continued)							
Question	Key	DOK	SMP	Primary Standard	Additional Standard(s)	Ready [®] Mathematics Instruction Lesson(s)	
34	D	1	4	5.NF.B.4b	—	14	
35	See page 10.	3	3	5.G.A.1	—	28	
36	See page 10.	3	3, 6, 7	5.NBT.A.3a	5.NBT.A.4, 5.NBT.A.3b	3	
37	В	2	_	5.NBT.A.4	5.NBT.B.7	4	
38	See page 10.	1	7	5.MD.A.1	—	21, 22	
39	В	3	2, 3	5.NF.A.2	—	11	
40	See page 11.	3	3, 6, 7	5.MD.C.3b	—	24	

Assessment 3							
Question	Key	DOK	SMP	Primary Standard	Additional Standard(s)	Ready [®] Mathematics Instruction Lesson(s)	
1	Part A: B and D Part B: A and C	1	7	5.MD.A.1	_	21, 22	
2	Part A: B and C Part B: B and D	1	7, 8	5.NBT.A.4	_	4	
3	С	2	7	5.NBT.A.1	—	1	
4	See page 11.	3	3, 5, 6, 7	5.G.B.3	_	30	
5	A, B, and D	1	—	5.OA.A.2	—	19	
6	See page 11.	2	5	5.MD.C.5c	5.MD.C.5b	27	
7	D	1	—	5.MD.C.4	5.MD.C.3b, 5.MD.C.5b	25	
8	See page 11.	2	1, 4, 6	5.MD.A.1	5.NBT.B.7, 5.NEA.2	21, 22	
9	С	1	—	5.G.A.1	_	28	
10	C and D	2	2	5.NBT.A.3b	_	4	
11	В	2	4	5.NF.B.4a	5.NF.B.6	13	
12	See page 11.	3	1, 3, 5, 6	5.NBT.B.6	5.NF.B.3	6	
13	Part A: B and C Part B: A and C	1	4, 6	5.NF.B.7a	5.NF.B.7b	17	
14	С	2	—	5.OA.A.1	_	19	
15	С	2	4	5.NBT.B.6		6	
16	See page 12.	2	2, 3, 5, 6	5.MD.C.5c	5.MD.C.5b, 5.NBT.B.5	27	
17	A and B	1	6	5.MD.C.3a	_	24	
18	В	2	—	5.NF.B.6	_	16	
19	В	1	4	5.NF.B.4b	_	14	
20	See page 12.	3	3, 6, 7, 8	5.NBT.A.2	_	2	
21	В	2	1	5.MD.C.5b		26	
22	D	2	5	5.G.B.4	_	31	
23	See page 12.	2	1, 2, 7	5.MD.A.1	5.MD.C.5b, 5.NBT.A.3b, 5.NBT.B.7	21, 22	
24	See page 12.	2	2, 4, 5, 7	5.NF.B.7c	5.NF.A.2	18	
25	В	2	1	5.OA.A.2	_	19	
26	Part A: D Part B: A, B, and C	3	2, 5	5.MD.B.2	5.NF.A.2	23	
27	Part A: B Part B: C	1	5	5.G.A.2	5.G.A.1	29	
28	See page 12.	2	4, 5, 7	5.MD.C.5b		26	
29	See page 12.	2		5.NF.B.7c		18	
30	В	2	2, 7	5.NBT.A.2	_	2	

Assessment 3 (continued)							
Question	Key	DOK	SMP	Primary Standard	Additional Standard(s)	Ready [®] Mathematics Instruction Lesson(s)	
31	Part A: B Part B: D	1	_	5.NBT.B.5	—	5	
32	See page 12.	3	2, 3, 6, 7	5.NBT.A.1	5.NBT.A.3b	1	
33	Part A: A and B Part B: B and C	2	2, 7, 8	5.NF.B.5a	_	15	
34	А	1	6	5.MD.C.3b	_	24	
35	В	3	3, 7	5.NF.A.2	_	11	
36	See page 12.	3	3, 6, 7	5.NF.B.4a	5.OA.A.2	13	
37	С	2	1	5.NF.A.1	_	10	
38	See page 12.	3	3	5.G.A.1	—	28	
39	В	2	2	5.NF.B.3	5.NF.B.6	12	
40	See page 12.	3	1, 3, 4, 5, 6	5.NF.A.2	_	11	



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