

# Eureka Remediation Tool: Grade 7

## Module 2, Topic B

To become mathematically proficient, students **must** access on-grade-level content. This document aims to help teachers who use the Eureka curriculum to target remediation for students needing extra support before and **during** approaching on-grade-level work, creating opportunities for on-time remediation directly connected to the new learning.

### About this Topic

#### Focus Standards:

7.NS.A.2: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

- 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.
- b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If  $p$  and  $q$  are integers, then  $-(p/q) = (-p)/q = p/(-q)$ . Interpret quotients of rational numbers by describing real-world contexts.
- c. Apply properties of operations as strategies to multiply and divide rational numbers.
- 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.

#### Topic Overview per the Eureka Curriculum

In Topic B, students extend their understanding of multiplication and division of whole numbers, decimals, and fractions to find the products and quotients of signed numbers (**7.NS.A.2**). Students begin in Lesson 10 by returning to conceptualization of multiplication as repeated addition. They relate multiplication to the Integer Game. For instance, gaining four  $-5$  cards, or  $4(-5)$ , is the same as  $0 + (-5) + (-5) + (-5) + (-5)$ , which is the same as  $0 - 5 - 5 - 5 - 5$ , or  $-20$ . They realize that if a negative card is taken out of their hand multiple times, their score goes up, for example,  $(-2)(-6) = 0 - (-6) - (-6) = 0 + 6 + 6 = 12$ . In Lesson 11, students draw upon their experiences with the Integer Card Game to justify the rules for multiplication of integers. The additive inverse (**7.NS.A.1c**) and distributive property are used to show that  $(-1)(-1) = 1$  (**7.NS.A.2a**).

From earlier grades, students understand division as the process of finding the missing factor of a product (**3.OA.B.6**). In Lesson 12, they use this relationship to justify that the rules for dividing signed numbers are consistent with that of multiplication, provided the divisor is not zero (**7.NS.A.2b**). Students extend the integer rules to include all rational numbers, recognizing that every quotient of two integers is a rational number provided the divisor is not zero.

In Lesson 13, students realize that the context of a word problem often determines whether the answer should be expressed in the fractional or decimal form of a rational number. They draw upon their previous understanding of equivalent fractions, place value, and powers of ten to convert fractions whose denominators are a product of 2's and 5's into decimals. In Lesson 14, students use long division to convert any fraction into a decimal that either terminates in zeros or repeats (**7.NS.A.2d**). Products and quotients continue to be related to the real world. In Lesson 15, students create numerical expressions with rational numbers based on the context of word problems. In Lesson 16, properties of operations are used to rewrite expressions in equivalent forms as students multiply and divide rational numbers efficiently without the aid of a calculator (**7.NS.A.2c**).

# Eureka Remediation Tool: Grade 7

## Module 2, Topic B

### Overview

Eureka Remediation Tools include:

1. a diagnostic assessment to help teachers determine the misunderstandings or gaps in mathematical knowledge related to a specific Topic in the Eureka curriculum
2. guidance for teachers to analyze student work on the diagnostic assessment
3. suggested materials for targeted remedial instruction

Note: The use of this guidance is not intended to delay students' engagement with on-grade-level learning. On-grade-level learning should be the focus of instructional time and be treated as an opportunity for students to "finish" learning previous skills and deepen conceptual understanding.

### Diagnostic Assessment

The diagnostic assessment is designed to be administered to targeted students prior to beginning instruction on the given Topic. When appropriate, it is broken into parts (Part A, Part B, and so on); each part addresses a different prerequisite standard and contains three problems. If a student correctly answers at least 2 out of the 3 problems, it can be assumed that he/she is ready to engage with the new content of the Topic with little to no support needed prior to engaging with the Topic. The diagnostic assessment is designed in this way so that teachers can determine the "entry point" to remedial instruction and/or opportunities for unfinished learning within the context of the new learning. The entry points and opportunities for unfinished learning will vary between students.

### Guidance for Remediation

The Remediation Guidance is designed for teacher use. It is also broken into parts (Part A, Part B, and so on) and correlates to the parts on the diagnostic assessment. Each part contains the following:

1. **The focus standard:** The focus standards are strategically chosen to address prerequisite skills and are purposefully arranged in the order that students typically master the skills and knowledge.
2. **Why this is important for current grade level work:** This section describes how the work of the prerequisite standard relates to the standard(s) addressed in the Topic of instruction.
3. **Using the diagnostic assessment to identify gaps:** This section identifies common errors students make on the diagnostic assessment items.
4. **Remediation Resources for Targeted Instruction:** The resources pinpoint specific Eureka lessons and parts of lessons for teachers to use to address gaps in mathematical knowledge. Using Eureka materials to address remediation ensures alignment to the standards, consistency in approach to learning, and similarities in strategies for solving problems.

## Diagnostic Assessment: Grade 7 Eureka Module 2, Topic B

Part A: 3.OA.B.5:

1. Is  $6 \times 5$  equal to  $5 \times 6$ ? Why or why not? Show your work and/or explain your thinking.
2. Is  $3 \times (5 \times 2)$  equal to  $(3 \times 5) \times 2$ ? Why or why not? Show your work and/or explain your thinking.
3. Is  $7 \times 8$  equal to  $(7 \times 3) + (7 \times 5)$ ? Why or why not? Show your work and/or explain your thinking.

Part B: 5.NF.B.3:

For each problem below, create a division sentence that is equivalent to the given fraction.

4.  $\frac{3}{5} =$

5.  $\frac{5}{8} =$

6.  $\frac{9}{7} =$

Part C: 4.NF.C.6:

For each problem below, write the decimal equivalent to the given fraction.

7.  $\frac{3}{10} =$

8.  $\frac{37}{100} =$

9.  $\frac{9}{100} =$

## Diagnostic Assessment: Grade 7 Eureka Module 2, Topic B

Part D: 6.NS.B.2:

For each problem below, find the quotient using the standard algorithm.

10.  $7,383 \div 23 =$

11.  $270 \div 24 =$

12.  $3 \div 16 =$

Part E: 6.NS.B.3 (division):

For each problem below, find the quotient using the standard algorithm.

13.  $14.4 \div 3 =$

14.  $2,640.9 \div 12 =$

15.  $54.604 \div 2.2 =$

Part F: 6.NS.B.3 (multiplication):

For each problem below, find the product using the standard algorithm.

16.  $17.6 \times 5 =$

17.  $0.38 \times 6 =$

18.  $12.3 \times 0.25 =$

## Diagnostic Assessment: Grade 7 Eureka Module 2, Topic B

Part G: 5.NF.B.7a:

19. Interpret the quotient  $\frac{1}{5} \div 2$ .

20. Compute the quotient:  $\frac{1}{4} \div 2$ . Support your answer with a visual fraction model and write a multiplication sentence that supports your quotient.

21. Compute the quotient:  $\frac{1}{9} \div 3$ . Support your answer with a visual fraction model and write a multiplication sentence that supports your quotient.

Part H: 5.NF.B.7b:

22. Interpret the quotient  $2 \div \frac{1}{4}$ .

23. Compute the quotient:  $5 \div \frac{1}{7}$ . Support your answer with a visual fraction model and write a multiplication sentence that supports your quotient.

24. Compute the quotient:  $6 \div \frac{1}{3}$ . Support your answer with a visual fraction model and write a multiplication sentence that supports your quotient.

Part I: 5.NF.B.4:

For each problem below, find the product.

25.  $\frac{2}{5} \times \frac{3}{7} =$

26.  $6 \times 5\frac{1}{3} =$

27.  $3\frac{1}{2} \times 9 =$

## Diagnostic Assessment Key: Grade 7 Eureka Module 2, Topic B

Solutions:

1. Yes. Explanations will vary.
2. Yes. Explanations will vary.
3. Yes. Explanations will vary.
4.  $3 \div 5$
5.  $4 \div 8$
6.  $9 \div 7$
7. 0.3
8. 0.37
9. 0.09
10. 321
11. 11.25
12. 0.1875
13. 4.8
14. 220.075
15. 24.82
16. 88
17. 2.28
18. 3.075
19. Answers will vary.
20.  $1/8; \frac{1}{8} \times 2 = \frac{1}{4}$
21.  $1/27; \frac{1}{27} \times 9 = \frac{1}{3}$
22. Answers will vary.
23. 35;  $35 \times \frac{1}{7} = 5$
24. 18;  $18 \times \frac{1}{3} = 6$
25.  $\frac{6}{35}$
26. 32
27.  $31\frac{1}{2}$

## Remediation Guidance: Grade 7 Eureka Module 2, Topic B

**Part A Focus:** 3.OA.B.5: Apply properties of operations as strategies to multiply and divide. *Examples: If  $6 \times 4 = 24$  is known, then  $4 \times 6 = 24$  is also known. (Commutative property of multiplication.)  $3 \times 5 \times 2$  can be found by  $3 \times 5 = 15$ , then  $15 \times 2 = 30$ , or by  $5 \times 2 = 10$ , then  $3 \times 10 = 30$ . (Associative property of multiplication.) Knowing that  $8 \times 5 = 40$  and  $8 \times 2 = 16$ , one can find  $8 \times 7$  as  $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$ . (Distributive property.)*

<p><b>Why this is important for current grade level work:</b> While this standard does not focus on learning the formal vocabulary and definitions of properties of operation, it is important for students to understand the various properties of multiplication as majority of the understanding in this topic is developed through the properties of multiplication. If students do not have a firm understanding of these properties, it will make it very difficult for them to access the beginning lessons in the target topic, leading to difficulty developing the grade-level understandings. Each problem focuses on a different property. The most important look for here is the students’ explanations, as these will show true understanding and will allow the teacher to see students’ use of precise mathematical language.</p>			<p><b>Remediation Resources for Targeted Instruction:</b>  <u>3rd Grade, Module 3, Topic A, Lesson(s) 1 – 2</u>  Use the Concept Development portion of each Lesson and a sampling of problems from the Problem Set that focus on conceptual understanding.</p>		
<p><b>Using the Diagnostic Assessment to identify gaps:</b></p> <table border="0" style="width: 100%;"> <tr> <td style="width: 33%; vertical-align: top;"> <p><b>Problem 1:</b> Look for students defend their stance by simply saying <math>30 = 30</math> and push them to articulate how/why the two products are equal even though they represent different situations (i.e., 5 groups of 6 compared to 6 groups of 5).</p> </td> <td style="width: 33%; vertical-align: top;"> <p><b>Problem 2:</b> Look for students that understand that “grouping” does not affect the outcome when multiplying. Remember that we do not require the mention of the formal terms (i.e., the associative property) but rather understanding the property.</p> </td> <td style="width: 33%; vertical-align: top;"> <p><b>Problem 3:</b> Students may be able to answer correctly that the two expressions are the equal, but look for students who cannot explain see the “breaking apart” of the 8 into 3 and 5.</p> </td> </tr> </table>				<p><b>Problem 1:</b> Look for students defend their stance by simply saying <math>30 = 30</math> and push them to articulate how/why the two products are equal even though they represent different situations (i.e., 5 groups of 6 compared to 6 groups of 5).</p>	<p><b>Problem 2:</b> Look for students that understand that “grouping” does not affect the outcome when multiplying. Remember that we do not require the mention of the formal terms (i.e., the associative property) but rather understanding the property.</p>
<p><b>Problem 1:</b> Look for students defend their stance by simply saying <math>30 = 30</math> and push them to articulate how/why the two products are equal even though they represent different situations (i.e., 5 groups of 6 compared to 6 groups of 5).</p>	<p><b>Problem 2:</b> Look for students that understand that “grouping” does not affect the outcome when multiplying. Remember that we do not require the mention of the formal terms (i.e., the associative property) but rather understanding the property.</p>	<p><b>Problem 3:</b> Students may be able to answer correctly that the two expressions are the equal, but look for students who cannot explain see the “breaking apart” of the 8 into 3 and 5.</p>			

## Remediation Guidance: Grade 7 Eureka Module 2, Topic B

**Part B Focus:** 5.NF.B.3: Interpret a fraction as division of the numerator by the denominator ( $a/b = a \div b$ ). 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  $3/4$  as the result of dividing 3 by 4, noting that  $3/4$  multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size  $3/4$ . If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*

<p><b>Why this is important for current grade level work:</b> Beginning in Lesson 12, the topic begins moving from multiplication to division. Majority of the division is represented first as a fraction, necessitating that students understand the fundamental connection between fractions and division. It is important that this understanding be solidified prior to beginning Lesson 12 (or at the beginning of Lesson 12). Moving forward in the topic, the lessons leverage this understanding of a fraction as division to build students' understanding and skills in converting between fractions and their decimal equivalents.</p>	<p><b>Remediation Resources for Targeted Instruction:</b></p> <p><u>5th Grade, Module 4, Topic B, Lesson(s) 2 - 3</u></p> <p>Use the Concept Development portion of each Lesson and a sampling of problems from the Problem Set focused on conceptual understanding.</p>	
<p><b>Using the Diagnostic Assessment to identify gaps:</b></p> <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><b>Problems 4 – 5:</b> Look for students who struggle to create a division sentence as this likely shows a gap in their understanding of the connection between fractions and division. This misunderstanding will make it difficult for students to access the new content as much of the division in the target topic is presented first as a fraction.</p> </td> <td style="width: 50%; vertical-align: top;"> <p><b>Problem 6:</b> Look for students who write their division sentence backwards (i.e. the denominator divided by the numerator) as this would show a misconception around improper fractions.</p> </td> </tr> </table>		<p><b>Problems 4 – 5:</b> Look for students who struggle to create a division sentence as this likely shows a gap in their understanding of the connection between fractions and division. This misunderstanding will make it difficult for students to access the new content as much of the division in the target topic is presented first as a fraction.</p>
<p><b>Problems 4 – 5:</b> Look for students who struggle to create a division sentence as this likely shows a gap in their understanding of the connection between fractions and division. This misunderstanding will make it difficult for students to access the new content as much of the division in the target topic is presented first as a fraction.</p>	<p><b>Problem 6:</b> Look for students who write their division sentence backwards (i.e. the denominator divided by the numerator) as this would show a misconception around improper fractions.</p>	



## Remediation Guidance: Grade 7 Eureka Module 2, Topic B

**Part C Focus:** 4.NF.C.6: Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram; represent 62/100 of a dollar as \$0.62.*

<p><b>Why this is important for current grade level work:</b> Beginning in Leeson 13, students begin their study of converting fractions to decimals leading to fluency in using long division to convert any fraction to a decimal, the explicit expectations of 7.NS.A.2d. It is imperative that this standard is addressed through language, not skill. If students can accurately read both fractions and decimals, connecting both through place value should not prove too challenging. Again, this understanding should be viewed as perquisite understanding needed prior to beginning Lesson 13. The problems scaffold in difficulty.</p>	<p><b>Remediation Resources for Targeted Instruction:</b>  <u><a href="#">4th Grade, Module 6, Topic A, Lesson(s) 1 - 2</a></u>  Use the Concept Development portion of each Lesson and a sampling of problems from the Problem Set focused on conceptual understanding.</p>		
<p><b>Using the Diagnostic Assessment to identify gaps:</b></p> <table border="0"><tr><td data-bbox="170 706 556 1169"><p><b>Problem 7:</b> Look for students who fail to place the three in the tenths place or students who put the three in the tenths place but also leave the “10” from the denominator in their answer (e.g., 0.310). Both show a misunderstanding of the connection between fractions and decimals.</p></td><td data-bbox="556 706 997 1169"><p><b>Problem 8:</b> Albeit helpful, a student does not have to use a zero in the ones place to be considered ready for the target standard. Check for the accuracy of their decimal, ensuring it is equivalent to the given fraction.</p></td><td data-bbox="997 706 1486 1169"><p><b>Problem 9:</b> Look for students who create a decimal to the tenths place, not recognizing the need to place a zero in the tenths place. Such a student may need some additional support in reading the fraction properly, helping he/she see the disconnect between the given fraction to the hundredths and his/her response to the tenths. Language can fill most misconceptions around converting between fractions and decimals.</p></td></tr></table>		<p><b>Problem 7:</b> Look for students who fail to place the three in the tenths place or students who put the three in the tenths place but also leave the “10” from the denominator in their answer (e.g., 0.310). Both show a misunderstanding of the connection between fractions and decimals.</p>	<p><b>Problem 8:</b> Albeit helpful, a student does not have to use a zero in the ones place to be considered ready for the target standard. Check for the accuracy of their decimal, ensuring it is equivalent to the given fraction.</p>
<p><b>Problem 7:</b> Look for students who fail to place the three in the tenths place or students who put the three in the tenths place but also leave the “10” from the denominator in their answer (e.g., 0.310). Both show a misunderstanding of the connection between fractions and decimals.</p>	<p><b>Problem 8:</b> Albeit helpful, a student does not have to use a zero in the ones place to be considered ready for the target standard. Check for the accuracy of their decimal, ensuring it is equivalent to the given fraction.</p>	<p><b>Problem 9:</b> Look for students who create a decimal to the tenths place, not recognizing the need to place a zero in the tenths place. Such a student may need some additional support in reading the fraction properly, helping he/she see the disconnect between the given fraction to the hundredths and his/her response to the tenths. Language can fill most misconceptions around converting between fractions and decimals.</p>	

## Remediation Guidance: Grade 7 Eureka Module 1, Topic A

**Part D Focus:** 6.NS.B.2: Fluently divide multi-digit numbers using the standard algorithm.

<p><b>Why this is important for current grade level work:</b></p> <p>As students begin to convert between fractions and decimals, the target grade-level standard calls for the use of the standard algorithm. While the standard algorithm is not the only method by which students can calculate quotients, it is the most efficient strategy in the long run, applicable to both whole numbers and decimals (which are used later in the topic). Furthermore, it is important that students see the algorithm as an extension of strategies built around place value and not as some disconnected, abstract process. The problems in this section mirror problems that students will encounter during the target topic and scaffold in difficulty.</p>	<p><b>Remediation Resources for Targeted Instruction:</b></p> <p><u>6th Grade, Module 2, Topic C, Lesson(s) 12 - 13</u></p> <p>Use the Classwork portion of each Lesson and a sampling of problems from the Problem Set focused on conceptual understanding and/or procedural skill and fluency.</p>		
<p><b>Using the Diagnostic Assessment to identify gaps:</b></p> <table border="0"><tr><td data-bbox="178 771 598 1185"><p><b>Problem 10:</b></p><p>Although the directions do indicate the use of the standard algorithm, if the student can produce the correct answer in a reasonable amount of time using an alternative strategy, he/she may be considered ready for the target standard. While the standard algorithm is the most efficient strategy, it is not necessarily required in Grade 7.</p></td><td data-bbox="598 771 1018 1185"><p><b>Problem 11:</b></p><p>Look for students who stop at the ones place, not continuing to the final answer which is a decimal. If the student uses remainder notation to acknowledge the answer is not a whole number, instruct them to find the decimal answer to ensure he/she can indeed continue the division to the final answer.</p></td><td data-bbox="1018 771 1438 1185"><p><b>Problem 12:</b></p><p>Look for students who divide 16 by 3 instead of 3 by 16 as this likely shows a misconception that the divisor cannot be larger than the dividend.</p></td></tr></table>		<p><b>Problem 10:</b></p> <p>Although the directions do indicate the use of the standard algorithm, if the student can produce the correct answer in a reasonable amount of time using an alternative strategy, he/she may be considered ready for the target standard. While the standard algorithm is the most efficient strategy, it is not necessarily required in Grade 7.</p>	<p><b>Problem 11:</b></p> <p>Look for students who stop at the ones place, not continuing to the final answer which is a decimal. If the student uses remainder notation to acknowledge the answer is not a whole number, instruct them to find the decimal answer to ensure he/she can indeed continue the division to the final answer.</p>
<p><b>Problem 10:</b></p> <p>Although the directions do indicate the use of the standard algorithm, if the student can produce the correct answer in a reasonable amount of time using an alternative strategy, he/she may be considered ready for the target standard. While the standard algorithm is the most efficient strategy, it is not necessarily required in Grade 7.</p>	<p><b>Problem 11:</b></p> <p>Look for students who stop at the ones place, not continuing to the final answer which is a decimal. If the student uses remainder notation to acknowledge the answer is not a whole number, instruct them to find the decimal answer to ensure he/she can indeed continue the division to the final answer.</p>	<p><b>Problem 12:</b></p> <p>Look for students who divide 16 by 3 instead of 3 by 16 as this likely shows a misconception that the divisor cannot be larger than the dividend.</p>	

## Remediation Guidance: Grade 7 Eureka Module 2, Topic B

**Part E Focus:** 6.NS.B.3: Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

### Why this is important for current grade level work:

During the latter part of the topic, there exist many problems that require students to divide with decimal dividends and/or decimal divisors. It is important that the teacher determine first if students are fluent in using the standard algorithm to calculate quotients of whole numbers, including decimal quotients of whole numbers, prior to determining if students can apply the algorithm to multi-digit decimals. As with division of whole numbers, it is important for students to see the algorithm as an extension of place value strategies, but recognizing that the standard algorithm does not work for decimal divisors, requiring an additional step prior to being able to apply the standard algorithm. If students have demonstrated mastery of the algorithm with whole numbers but struggle with decimals, this may be viewed as an opportunity for unfinished learning and addressed through additional supports as the target topic progresses. The problems in this section mirror problems that students will encounter during the target topic and scaffold in difficulty.

### Using the Diagnostic Assessment to identify gaps:

#### Problem 13:

Although the directions do indicate the use of the standard algorithm, if the student can produce the correct answer in a reasonable amount of time using an alternative strategy, he/she may be considered ready for the target standard. While the standard algorithm is the most efficient strategy, it is not necessarily required in Grade 7.

#### Problem 14:

Look for students who stop at the ones place, not continuing to the final answer which is a decimal. If the student uses remainder notation to acknowledge the answer is not a whole number, instruct them to find the decimal answer to ensure he/she can indeed continue the division to the final answer.

#### Problem 15:

Look for students who struggle with the decimal divisor. If a student reverts to an alternative strategy that works better for decimal divisors, he/she may be considered ready for the target standard. If a student thinks the quotient cannot be calculated at all due to the decimal divisor, this misconception will need to be addressed.

### Remediation Resources for Targeted Instruction:

6th Grade, Module 2, Topic C, Lesson(s) 14 - 15

Use the Classwork portion of each Lesson and a sampling of problems from the Problem Set focused on conceptual understanding and/or procedural skill and fluency.

## Remediation Guidance: Grade 7 Eureka Module 2, Topic B

**Part F Focus:** 6.NS.B.3: Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

<p><b>Why this is important for current grade level work:</b> As students reach the end of the topic, the lessons shift towards a focus on fluency including problems with multiple terms and a combination of multiplication and division. At the same time, the problems shift from integers to all rational numbers. Like division, the standard algorithm is not necessarily required, but it will prove to be the most efficient strategy in the long run. The problems in this section mirror problems that students will encounter during the target topic and scaffold in difficulty.</p>	<p><b>Remediation Resources for Targeted Instruction:</b>  <u>6th Grade, Module 2, Topic B, Lesson(s) 10 - 11</u>  Use the Classwork portion of each Lesson and a sampling of problems from the Problem Set focused on conceptual understanding and/or procedural skill and fluency.</p>		
<p><b>Using the Diagnostic Assessment to identify gaps:</b></p> <table border="0"><tr><td data-bbox="178 670 590 1094"><p><b>Problem 16:</b> Although the directions do indicate the use of the standard algorithm, if the student can produce the correct answer in a reasonable amount of time using an alternative strategy, he/she may be considered ready for the target standard. While the standard algorithm is the most efficient strategy, it is not necessarily required in Grade 7.</p></td><td data-bbox="590 670 1010 1094"><p><b>Problem 17:</b> Look for students whose product uses the correct digits but in the wrong place value as this shows a gap in understanding multiplication of decimals.</p></td><td data-bbox="1010 670 1444 1094"><p><b>Problem 18:</b> Look for students who correctly answer problems 16 and 17 but not 18 as this will likely show a misunderstanding of how to multiply when both factors are decimals.</p></td></tr></table>		<p><b>Problem 16:</b> Although the directions do indicate the use of the standard algorithm, if the student can produce the correct answer in a reasonable amount of time using an alternative strategy, he/she may be considered ready for the target standard. While the standard algorithm is the most efficient strategy, it is not necessarily required in Grade 7.</p>	<p><b>Problem 17:</b> Look for students whose product uses the correct digits but in the wrong place value as this shows a gap in understanding multiplication of decimals.</p>
<p><b>Problem 16:</b> Although the directions do indicate the use of the standard algorithm, if the student can produce the correct answer in a reasonable amount of time using an alternative strategy, he/she may be considered ready for the target standard. While the standard algorithm is the most efficient strategy, it is not necessarily required in Grade 7.</p>	<p><b>Problem 17:</b> Look for students whose product uses the correct digits but in the wrong place value as this shows a gap in understanding multiplication of decimals.</p>	<p><b>Problem 18:</b> Look for students who correctly answer problems 16 and 17 but not 18 as this will likely show a misunderstanding of how to multiply when both factors are decimals.</p>	

## Remediation Guidance: Grade 7 Eureka Module 2, Topic B

**Part G Focus:** 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  $(1/3) \div 4$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that  $(1/3) \div 4 = 1/12$  because  $(1/12) \times 4 = 1/3$ .*

### Why this is important for current grade level work:

There exist problems in the latter lessons of the target topic that require students to perform division involving fractions and/or mixed numbers. As such, it is important for teachers to determine first if students are fluent with such problems. If students are not fluent in performing division with fractions and/or mixed numbers, teachers may need to provide additional supports throughout the topic. These problems will allow the teacher to determine if the gap exists in the fundamental understanding of division with fractions or if students simply haven't reached fluency. While some problems in the target topic are beyond the expectations of the problems in this section, the problems in this section should prove to be enough to determine readiness for the grade-level work.

### Using the Diagnostic Assessment to identify gaps:

#### Problem 19:

Look for students who incorrectly identify 2 as the dividend as this may show that a student thinks you cannot divide a fraction by a whole number.

#### Problem 20:

In the problem  $\frac{1}{4} \div 2$ ,  $\frac{1}{4}$  is getting split into two equal groups; therefore, the group size must be half the size of  $\frac{1}{4}$ . The students can ask themselves, "2 groups of what is  $\frac{1}{4}$ ?" Since  $2 \times \frac{1}{8} = \frac{1}{4}$ ,  $\frac{1}{4} \div 2$  must be  $\frac{1}{8}$ .

#### Problem 21:

In the problem  $\frac{1}{9} \div 3$ ,  $\frac{1}{9}$  is getting split into three equal groups; therefore, the group size must be one third the size of  $\frac{1}{9}$ . The students can ask themselves, "3 groups of what is  $\frac{1}{9}$ ?" Since  $3 \times \frac{1}{27} = \frac{1}{9}$ ,  $\frac{1}{9} \div 3$  must be  $\frac{1}{27}$ . Look for students who try to "simplify" or "reduce" the 3 and the 9, leading to an answer of  $\frac{1}{3}$ . Such students do not understand the problem and have likely misused a previously learned "trick."

### Remediation Resources for Targeted Instruction:

[5th Grade, Module 4, Topic G, Lesson 26](#)

Use the Concept Development portion of each Lesson and a sampling of problems from the Problem Set focused on conceptual understanding and/or procedural skill and fluency.

## Remediation Guidance: Grade 7 Eureka Module 2, Topic B

**Part H Focus:** 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  $4 \div (1/5)$ , and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that  $4 \div (1/5) = 20$  because  $20 \times (1/5) = 4$ .*

### Why this is important for current grade level work:

There exist problems in the latter lessons of the target topic that require students to perform division involving fractions and/or mixed numbers. As such, it is important for teachers to determine first if students are fluent with such problems. If students are not fluent in performing division with fractions and/or mixed numbers, teachers may need to provide additional supports throughout the topic. These problems will allow the teacher to determine if the gap exists in the fundamental understanding of division with fractions or if students simply haven't reached fluency. While some problems in the target topic are beyond the expectations of the problems in this section, the problems in this section should prove to be enough to determine readiness for the grade-level work.

### Using the Diagnostic Assessment to identify gaps:

#### Problem 22:

Look to see if students use an if/then statement to relate the division of 2 by  $\frac{1}{4}$  as how many fourths can go into 2 wholes. If there are 4 fourths in 1 whole, then there must be 8 fourths in 2 wholes.

#### Problem 23:

For students who struggle knowing where to start, encourage them to draw a visual model of 5 wholes, each split into 7 equal groups. Students should label/annotate each whole as being equivalent to 7 sevenths which totals to 35 sevenths in 5 wholes; therefore, the answer is 35.

#### Problem 24:

Look for students who try to "simplify" or "reduce" the 6 and the 3, leading to an answer of 2. Such students do not understand the problem and have likely misused a previously learned "trick."

### Remediation Resources for Targeted Instruction:

5th Grade, Module 4, Topic G, Lesson 25

Use the Concept Development portion of each Lesson and a sampling of problems from the Problem Set focused on conceptual understanding and/or procedural skill and fluency.

## Remediation Guidance: Grade 7 Eureka Module 2, Topic B

**Part I Focus:** 5.NF.B.4: Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

### **Why this is important for current grade level work:**

In the latter part of the topic, students will encounter problems that require the multiplication of fractions and mixed numbers. These problems will allow teachers to identify which students have already mastered this skill, allowing them to focus more on the new learning of doing this work with negative values. While gaps in this understanding and skill may be viewed as opportunities for unfinished learning, it is important that the teacher provide additional support throughout the topic to ensure students become more fluent in their ability to multiply fractions. For students that do struggle with this skill, when studying the grade-level content, focus first on the sign of the product, ensuring students are mastering the new content, then assist them in carrying out the actual calculations. The problems in this section mirror problems that students will encounter during the target topic and scaffold in difficulty.

### **Using the Diagnostic Assessment to identify gaps:**

#### **Problem 25:**

Look for students who only multiply the numerators, confusing multiplication of fractions with addition and subtraction of fractions. Also, look for students who try to create a common denominator, again confusing multiplication of fractions with addition and subtraction of fractions.

#### **Problems 26 – 27:**

Look for students who struggle to multiply with mixed numbers and encourage them to apply the distributive property. Also, look for students who convert the mixed numbers to improper fractions and ask them if this is a requirement. If the students think converting mixed numbers to improper fractions is required, show them how the distributive property can be applied to the problem. A deep understanding of the distributive property and multiple applications of it will prove advantageous for students long term.

### **Remediation Resources for Targeted Instruction:**

[5th Grade, Module 4, Topic E, Lesson\(s\) 13 - 15](#)

Use the Concept Development portion of each Lesson and a sampling of problems from the Problem Set focused on conceptual understanding and/or procedural skill and fluency.