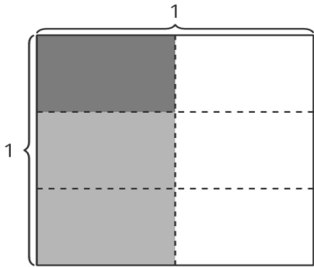
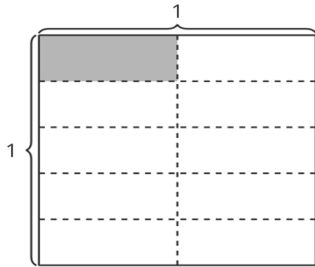
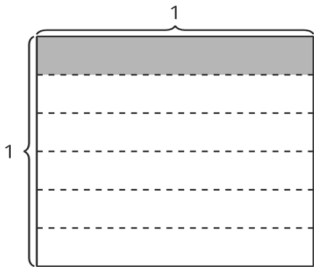
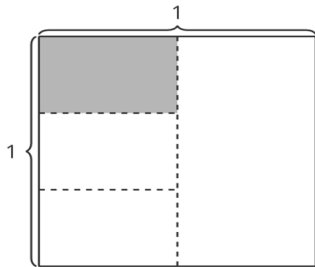


Let's Do Some Math Which One Doesn't Belong	A  B  C  D 
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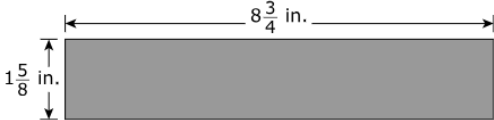
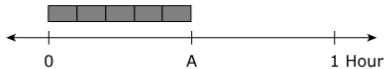
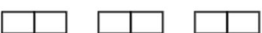
Standards Unpacking

Key	Standard	Prerequisites/Vocabulary
Put a box around the <u>conceptual component</u> of the standard. Underline the <u>procedural/fluency component</u> of the standard.	5.NF.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. <i>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?</i>	What prior knowledge should my students have?
		What vocabulary/ notation should students know for this standard?
Put a cloud around the <u>application component</u> of the standard.	5.NF.4- Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.	What prior knowledge should my students have?
		What vocabulary/ notation should students know for this standard?

Standards Unpacking		
Key	Standard	Prerequisites/Vocabulary
Put a box around the conceptual component of the standard. Underline the <u>procedural/fluency component</u> of the standard. Put a cloud around the application component of the standard.	5.NF.4a- Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations, $a \times q \div b$.	What prior knowledge should my students have?
		What vocabulary/ notation should students know for this standard?
	5.NF.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.	What prior knowledge should my students have?
		What vocabulary/ notation should students know for this standard?
	5.NF.5- Interpret multiplication as scaling (resizing).	What prior knowledge should my students have?
		What vocabulary/ notation should students know for this standard?
	5.NF.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.	What prior knowledge should my students have?
		What vocabulary/ notation should students know for this standard?
	5.NF.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; relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.	What prior knowledge should my students have?
		What vocabulary/ notation should students know for this standard?

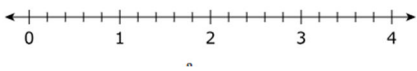
Standards Unpacking		
Key	Standard	Prerequisites/Vocabulary
Put a box around the conceptual component of the standard. Underline the <u>procedural/fluency component</u> of the standard. Put a cloud around the  application component of the standard.	5.NF.6- Solve real-world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	What prior knowledge should my students have?
		What vocabulary/ notation should students know for this standard?
	5.NF.7- Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.	What prior knowledge should my students have?
		What vocabulary/ notation should students know for this standard?
	5.NF.7a- Interpret division of a unit fraction by a non-zero whole number and compute such quotients. <i>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 $(1/12) \times 4 = 1/3$.</i>	What prior knowledge should my students have?
		What vocabulary/ notation should students know for this standard?
	5.NF.7b- Interpret division of a whole number by a unit fraction and compute such quotients. <i>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 $20 \times (1/5) = 4$.</i>	What prior knowledge should my students have?
		What vocabulary/ notation should students know for this standard?
	5.NF.7c- Solve <u>real-world problems</u> 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. <i>For example, how much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $1/3$-cup servings are in 2 cups of raisins?</i>	What prior knowledge should my students have?
		What vocabulary/ notation should students know for this standard?

Multiply and Divide Fractions

Haley babysits after school 5 days a week Monday through Friday. She earns \$9 for each hour she babysits. Haley babysits for 2 hours each day on Monday, Tuesday, and Wednesday. She babysits for $2\frac{1}{2}$ hours each day on Thursday and Friday. Haley saves $\frac{2}{3}$ of the money she earns each week. - How much money will Haley save from babysitting in one week? - Show your work. - Include the equation or equations used to solve the problem.	A piece of paper is in the shape of a rectangle. The piece of paper is $1\frac{5}{8}$ inches (in.) wide and $8\frac{3}{4}$ in. long.  A student cuts the piece of paper in the following order: - The student cuts off $\frac{3}{4}$ inch from the width. - The student cuts off $\frac{3}{4}$ inch from the length. - The student cuts the remaining piece of paper into 12 equally long pieces of paper. What is the area of each of the 12 equally long pieces of paper? Explain your answer completely and show all your work. Include in your explanation an equation you can use to find the area of each of the 12 equally long pieces of paper.
Which statements are true for any positive whole number? Select the three correct answers. ☐ A. When multiplied by $1\frac{1}{2}$, the product is less than the number. ☐ B. When multiplied by $\frac{6}{6}$, the product is less than the number. ☐ C. When multiplied by $\frac{4}{5}$, the product is less than the number. ☐ D. When multiplied by $\frac{1}{2}$, the product is greater than the number. ☐ E. When multiplied by $\frac{5}{4}$, the product is greater than the number. ☐ F. When multiplied by $1\frac{2}{3}$, the product is greater than the number.	Roberto decorates rectangular signs. One sign is $\frac{2}{3}$ foot long and $\frac{1}{4}$ foot wide. Another sign is $\frac{1}{2}$ foot long and $\frac{1}{3}$ foot wide. It takes Roberto $\frac{3}{4}$ hour to decorate a 1-square-foot sign. What is the total amount of time, in hours, it takes Roberto to decorate both signs? Show or explain each step you used to find your answer.
Mr. Diaz bought a board that was 12 feet long. He cut the entire board into pieces that were each $\frac{1}{3}$ foot long. How many pieces did Mr. Diaz have?	A $\frac{1}{2}$-pound bag of granola will be shared equally among 8 friends. How many pounds of granola will each friend receive?
A 28-inch ribbon is cut into 8 pieces that are all the same length. What is the length of each piece?	Which comparison is correct? ☐ A. $\frac{1}{3} \times 45 < 45$ ☐ B. $60 < 60 \times \frac{3}{4}$ ☐ C. $20 \times \frac{1}{5} > 20$ ☐ D. $25 < \frac{2}{3} \times 25$
Cora has $\frac{1}{2}$ hour to do 5 chores. She plans to spend the same fraction of an hour on each chore. She wants to use the number line to help her determine what fraction of an hour she can spend on each chore.  - What is the correct number label for point A? - Explain how to use this number line to help Cora solve her problem. - What fraction of an hour will she spend on each chore?	Dan has 3 cups of cupcake batter. Each cupcake is made with $\frac{1}{4}$ cup of batter. Which model should Dan use to find the total number of cupcakes he can make with 3 cups of batter? ☐ A.  ☐ B.  ☐ C.  ☐ D. 

Multiply and Divide Fractions

Part A: The number line shown can be used to find the product of $\frac{3}{5}$ and 4.

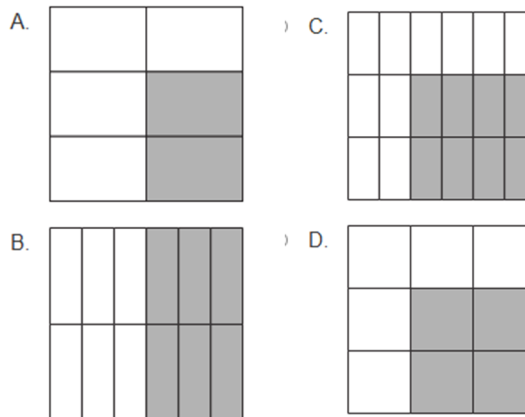


- What is the value of the product of $\frac{3}{5}$ and 4?
- Explain how the number line can be used to find the product.

Part B: Explain how a number line can be used to find the product of $\frac{3}{5}$ and $\frac{1}{2}$.

Which model represents the multiplication problem

$$\frac{2}{3} \times \frac{1}{2} = \frac{2}{6}?$$



Dana is making bean soup. The recipe she has makes 10 servings and uses $\frac{3}{4}$ of a pound of beans. How many total pounds of beans does she need to make 5 servings of soup?

She has $\frac{1}{16}$ of a pound of beans in one container and $\frac{1}{4}$ of a pound of beans in another container. How many more pounds of beans does Dana need to make the 5 servings of soup? Show your work or explain your answer.

Kerry cut an 8-foot-long board into 6 pieces that are equal in length. Write this as a fraction. Explain how you can use multiplication to prove that your answer is correct. Include an equation in your explanation.

Mr. Edwards is making sandwiches. He has 4 pounds of cheese. He puts $\frac{1}{8}$ pound of cheese in each sandwich.

What is the total number of sandwiches Mr. Edwards makes using all 4 pounds of cheese?

Which comparison is correct?

- ☐ A. $\frac{1}{3} \times 45 < 45$
- ☐ B. $60 < 60 \times \frac{3}{4}$
- ☐ C. $20 \times \frac{1}{5} > 20$
- ☐ D. $25 < \frac{2}{3} \times 25$

LESSON 20: Multiply Fractions

Directions: Complete the following SOLVE problem with your teacher. You will only complete the S step.

Danielle is working on a design for her art project. The design is made up of rectangles and triangles. There are a total of 24 rectangles in the design, and each rectangle has a width of $\frac{1}{2}$ -inch and a length of $\frac{3}{4}$ -inch. What is the area of each of the rectangles?

S Underline the question.

This problem is asking me to find _____.

Directions: Complete this page with your teacher and partner.

Problem	Meaning	Model
1. $3 \cdot \frac{1}{6} =$		
2. $\frac{3}{5} \cdot 2 =$		
3. $4 \cdot \frac{1}{3} =$		
4. $\frac{1}{4} \cdot 2 =$		
5. $2 \cdot \frac{2}{5} =$		
6. $\frac{2}{6} \cdot 3 =$		

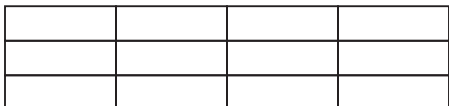
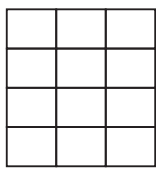
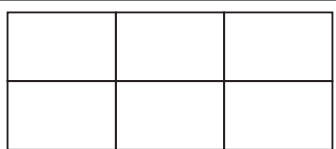
LESSON 20: Multiply Fractions

Directions: Complete this page with your teacher and partner. Simplify all answers.

Problem	Meaning	Model
1. $\frac{1}{3} \cdot \frac{3}{4} =$		
2. $\frac{1}{4} \cdot \frac{2}{3} =$		
3. $\frac{2}{6} \cdot \frac{1}{2} =$		
4. $\frac{4}{5} \cdot \frac{1}{2} =$		
5. $\frac{1}{2} \cdot \frac{2}{4} =$		

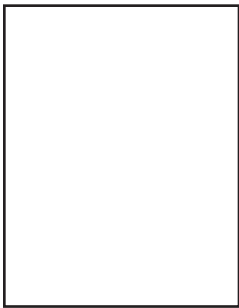
LESSON 20: Multiply Fractions

Directions: Complete this page with your teacher and partner.

Problem	Meaning	Model
1. $\frac{1}{2} \cdot \frac{3}{5} =$		
2. $\frac{1}{3} \cdot \frac{2}{4} =$		
3. $\frac{3}{4} \cdot \frac{1}{3} =$		
4. $\frac{1}{2} \cdot \frac{2}{3} =$		
5. $2 \cdot \frac{1}{8} =$		

LESSON 20: Multiply Fractions

Directions: Complete this page with your partner.

Area Model	Multiplication Problem
6. 	$\frac{1}{4} \cdot \frac{2}{3} =$
7. 	$\frac{4}{5} \cdot \frac{1}{3} =$

Look at Problem 6: $\frac{1}{4} \cdot \frac{2}{3}$. Work with a partner to figure out how you can solve this problem numerically without the pictures. Write your solution.

Will this solution work for Problem 7? _____

How would Problem 5 be solved numerically? _____

LESSON 23: Divide Fractions and Whole Numbers

Directions: Complete the following SOLVE problem with your teacher. You will only complete the S step.

Sonya and her friend, Mari, are making bracelets to sell at the school carnival. At the craft store they bought a bag of colored beads and string to make the bracelets. The bag of beads weighs $\frac{3}{4}$ of a pound. If the girls divide the beads equally, what amount of beads will each girl receive?

S Underline the question.

This problem is asking me to find _____.

Directions: Complete this page with your teacher and partner.

Problem	Wording	Model
1. $2 \div \frac{1}{3} =$		
Multiplication Check	Wording	
Problem	Wording	Model
2. $2 \div \frac{1}{6} =$		
Multiplication Check	Wording	

LESSON 23: Divide Fractions and Whole Numbers

Directions: Complete this page with your partner.

Problem	Wording	Model
3. $2 \div \frac{1}{2} =$		
Multiplication Check	Wording	
Problem	Wording	Model
4. $2 \div \frac{1}{5} =$		
Multiplication Check	Wording	
Problem	Wording	Model
5. $2 \div \frac{1}{4} =$		
Multiplication Check	Wording	

LESSON 23: Divide Fractions and Whole Numbers

Directions: Complete this page with your teacher and partner.

Problem	Wording	Model
1. $\frac{1}{4} \div 2 =$		
Multiplication Check		
Problem	Wording	Model
2. $\frac{1}{2} \div 5 =$		
Multiplication Check		
Problem	Wording	Model
3. $\frac{2}{3} \div 3 =$		
Multiplication Check		

LESSON 23: Divide Fractions and Whole Numbers

Directions: Complete this page with your partner.

Problem	Wording	Model
4. $\frac{3}{4} \div 2 =$		
Multiplication Check		
Problem	Wording	Model
5. $\frac{1}{3} \div 4 =$		
Multiplication Check		
Problem	Wording	Model
6. $\frac{3}{5} \div 2 =$		
Multiplication Check		

Understanding Reasoning Questions

Use this sheet as a reflection tool to support the understanding of the evidence statement around the reasoning questions. After you engage/learn about the questions, use the tool to make notes around your take aways and implementation ideas.

Current Unit Topics:	
	Evidence Statement for Reasoning
What Content Standards Are Addressed in This Evidence Statement from the Current Unit?	
Takeaways About the Statement – What Do Students Need to Be Able to Do	
What Should Be Evident in a Student Response	

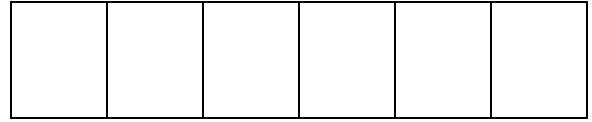
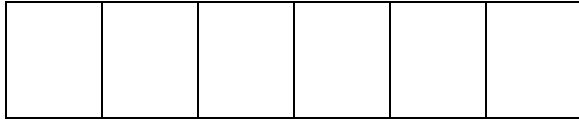
What Type of Reasoning

Explain	Identify the Error

Reasoning Question – 5.C.4-1

Used from: NJ Released Questions – 5.C.4-1 – Add and Subtract Fractions – M03445

Josh biked $1\frac{1}{3}$ miles to school. Callie biked $\frac{1}{2}$ mile to school. The fraction-strip diagram shown can be used to find how many more miles Josh biked than Callie.



- How many more miles did Josh bike than Callie?
- Explain how the diagram can be used to answer this question.
- What is the total number of miles Josh and Callie biked altogether?
- Explain how the diagram can be used to find the total number of miles Josh and Callie biked altogether.