

Computation with Rational Numbers

MUFFIN MADNESS

Embedded Assessment 2

Use after Activity 1.7.

Write your answers on notebook paper. Show your work.

Muffin Madness is a bakery that sells all types of muffins, but only the tops. Everyone knows the top of the muffin is the best part. The bakery is best known for blueberry muffins. Tina is the owner of *Muffin Madness* and is also the best baker. Here is her secret recipe for the blueberry muffins.

Tina's Blueberry Muffins	
Makes 12 muffins	
$1\frac{1}{3}$ cups flour	1 Tbsp. baking powder
$\frac{1}{3}$ cup butter, melted	$\frac{3}{4}$ tsp. salt
1 cup milk	$1\frac{1}{2}$ tsp. grated orange peel
$\frac{1}{2}$ cup sugar	1 egg
1 cup blueberries	

Tina uses math to adjust recipes based on customer feedback, for special orders, and to help customers with their own baking problems. Look at the customer feedback and Tina's response to each.

Customer: "These muffins need a little more salt and they seem a little too thick and heavy."

Tina suggests adding $\frac{1}{2}$ tsp salt and reducing the flour by $\frac{3}{8}$ c.

1. How much salt will the recipe have? Show how you found the amount of salt Tina will now use.
2. How much flour will Tina now use in the recipe? Explain how you found this amount.

Customer: "I really need only about $\frac{3}{4}$ of a batch."

3. Tina plans to make $\frac{3}{4}$ of a batch for this customer.
 - a. How much orange peel will she use?
 - b. How much butter will she use?
 - c. How many muffins will be in the batch?

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4. Customer: “I lost my $\frac{1}{2}$ -cup measuring cup. How can I measure out $1\frac{1}{2}$ cups of water for my recipe?”

Tina: suggests using $\frac{1}{4}$ -cup measuring cup. How many times will the customer fill the measuring cup? Give an illustration to show how you arrived at your answer.

As the owner of the bakery, Tina also manages the finances.

Complete each statement. Show your work.

5. Twenty-pound bags of flour are on sale at two different suppliers:

Supplier 1: \$3.79, 15% off

Supplier 2: \$3.66 discounted to \$3.20.

From which supplier should Tina buy flour?

- 6.** Tina’s goal this month was to earn a total of \$10,000. Her total earnings were \$13,500. What percentage of her goal did she meet?
- 7.** This month the bakery spent \$9450 and earned a total of \$13,500.
- What was the amount of profit for the bakery?
 - What was the percentage of profit?
- 8.** Last year Tina charged \$0.79 per muffin, but this year she has decided to charge \$0.99. What is the percent of increase in Tina’s prices?
- 9.** Next year Tina wants to mark up the price by 18% of this year’s price. How much will Tina charge for muffins next year?
- 10.** Tina keeps track of customer feedback using comment cards, and only 3 out of 346 comment cards were negative. What percentage of the feedback was negative?

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Tina's town has two banks. First Town Bank offers compound interest at a rate of 5.1%, and it is compounded semi-annually. Second Town Bank offers compound interest at a rate of 5.3%, and it is compounded annually.

11. Use this month's earnings of \$13,500 to decide which bank pays the best interest. Copy and complete the tables to show the earnings in interest from both banks.

First Town Bank		
Year	Interest Earned	Account Balance
1		
2		

Second Town Bank		
Year	Interest Earned	Account Balance
1		
2		

Which bank is paying the best interest?

12. Total sales over the last ten years were \$1,610,000. The bakery had about 460,000 customers.

- a. Write each number in scientific notation.

$$\$1,610,000 =$$

$$460,000 =$$

- b. Then write and evaluate an expression to find the average amount spent by each customer.

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	Exemplary	Proficient	Emerging
Math Knowledge #1, 2, 6, 7, 8, 9, 10, 11	The student correctly: <ul style="list-style-type: none"> • Uses fraction operations to find the salt, the flour, orange peel, and butter amounts. (1, 2) • Determines percentages for the goal (6) and the negative feedback. (10) • Determines the percent profit (7) and percent increase in price. (8) • Determines the amount to charge for muffins next year. (9) • Completes the tables for both banks. (11) 	The student attempts all twelve questions but is only able to give nine complete and correct answers.	The student gives only three complete and correct answers.
Problem Solving #3abc, #4, #12b	The student correctly: <ul style="list-style-type: none"> • Uses fraction operations to find the orange peel and butter amounts. (3a, 3b) • Finds how many muffins are in the batch. (3c) • Determines how to measure the water without the $\frac{1}{2}$-cup measure. (4) • Evaluates an expression written in scientific method. (12b) 	The student gives complete and correct answers to only four of the five items.	The student gives only two complete and correct items out of five.
Representation # 5, 12a, 12b	The student correctly: <ul style="list-style-type: none"> • Determines from which flour supplier to buy. (5) • Represents numbers in scientific notation. (12a) • Writes expressions using numbers written in scientific notation. (12b) 	The student gives only two complete and correct answers.	The student gives only one complete and correct answer.
Communication #3d, 4, 5	The student correctly: <ul style="list-style-type: none"> • Compares and contrasts methods used for multiplying fractions, mixed numbers and whole numbers. (3d) • Explains how to represent mixed numbers using smaller fractional parts. (4) • Explains with supporting work the choice of flour supplier. (5) 	The student provides only two complete and correct responses.	The student provides only one complete and correct response.