

Name: _____ Date: _____

The Case of the Missing Fractions

Fractions and Decimals

Juan found the following list of ingredients for a recipe for an oatmeal cake. Someone had changed all of the fractions to decimals. To make matters worse, Juan could not read some of the numbers in the decimals! He knows that cups and teaspoons are measured in eighths, fourths, thirds, and halves. He also knows one stick of margarine contains 8 tablespoons. Can you help Juan find the missing fractions so he can make the cake? Are there any ingredients that could have more than one possible fraction? (Hint: Use the **b/c** and **F-D** keys on your calculator!)

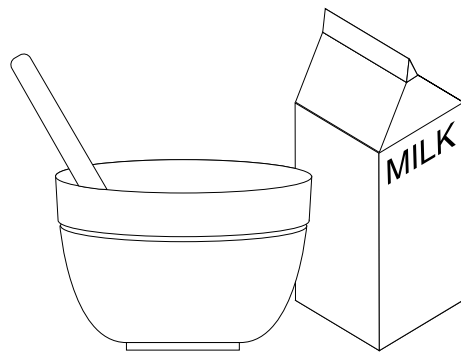
Rise and Shine Oatmeal Cake

Cake

- 0.7■ cup milk
- 0.■ cup oats
- 0.■5 cup brown sugar
- 0.■3 cup oil
- 1 egg
- 1.2■ cups flour
- 2 teaspoons baking powder
- 0.■ teaspoon salt
- 0.1■5 teaspoon nutmeg

Topping

- 0.■75 cup flour
- 0.6■ cup sugar
- 0.2■ cup oats
- 0.6■5 of a stick of margarine, softened



Thinking Cap



Suppose Juan wants to double the recipe. Can you help him decide how much of each ingredient to use? (Hint: Use the **a** and the **b/c** keys to enter mixed numbers into the calculator!)

The Case of the Missing Fractions

Fractions and Decimals

Topic: Changing Fractions to Decimals and vice versa

Objective: To use the calculator to solve problems involving changing fractions to decimals and vice versa.

NCTM Standards: Problem Solving, Connections, Number and Number Relationship

Using the Activity

Students use the calculator in this activity to change fractions to decimals and vice versa. Students should experiment with different fractions until they find the correct one in each case.

- The **b/c** key can be used to enter fractions into the calculator.
- The **F-D** key can be used to change fractions to decimals.

Example The recipe shows 0.7■ cup milk. The only possible fraction with a denominator of 8, 4, 3, or 2 that changes to a decimal with a 7 in the tenths place is $\frac{3}{4}$. Since 3 **b/c** 4 **F-D** 0.75, the missing digit is a 5 and the fraction is $\frac{3}{4}$.

Assessment Students should be encouraged to use the **F-D** key to change the decimals back to fractions to be sure they recorded the fractions accurately.

Answers

Cake: $0.75 = \frac{3}{4}$ cup milk; $0.5 = \frac{1}{2}$ cup oats; $0.25 = \frac{1}{4}$ or $0.75 = \frac{3}{4}$ cup brown sugar;
 $0.33 = \frac{1}{3}$ cup oil; $1.25 = 1\frac{1}{4}$ cups flour; $0.5 = \frac{1}{2}$ teaspoon salt; $0.125 = \frac{1}{8}$ teaspoon nutmeg.

Topping: $0.375 = \frac{3}{8}$ or $0.875 = \frac{7}{8}$ cup flour; $0.66 = \frac{2}{3}$ cup sugar; $0.25 = \frac{1}{4}$ cup oats;
 $0.625 = \frac{5}{8}$ of a stick of margarine.

Thinking Cap

As an extension, students are asked to double the recipe. They can use **b/c** key to enter the fraction and then press **X** 2 **=** to double each amount. In the case of a mixed number, they can use the **a** and the **b/c** keys. For example, to enter $1\frac{1}{4}$, press 1 **a** 1 **b/c** 4.

Answers

Cake: $1\frac{1}{2}$ cups milk; 1 cup oats; $\frac{1}{2}$ or $1\frac{1}{2}$ cups brown sugar; $\frac{2}{3}$ cups oil; 2 eggs; $2\frac{1}{2}$ cups flour;
 4 teaspoons baking powder; 1 teaspoon salt; $\frac{1}{4}$ teaspoon nutmeg.

Topping: $\frac{3}{4}$ or $1\frac{3}{4}$ cups flour; $1\frac{1}{3}$ cups sugar; $\frac{1}{2}$ cups oats; $1\frac{1}{4}$ sticks of margarine.