

## TORTILLAS

### Performance Standard (6A/6B/8B/8C/8D).D

Convert a recipe in order to serve a larger group of people accordingly:

- *Mathematical knowledge:* Know how to change one quantity (including quantities with fractions) into another quantity and use that knowledge to triple a recipe.
- *Strategic knowledge:* Use appropriate strategies to convert the recipe correctly.
- *Explanation:* Explain clearly and completely what was done and why it was done.

### Procedures

1. *In order to demonstrate knowledge and use of numbers and their representations in a broad range of theoretical and practical settings (6A), investigate, represent and solve problems using number facts, operations (addition, subtraction, multiplication, division) and their properties, algorithms and relationships (6B), interpret and describe numerical relationships using tables, graphs and symbols (8B), solve problems using systems of numbers and their properties (8C), and use algebraic concepts and procedures to represent and solve problems (8D),* students should experience sufficient learning opportunities to develop the following:
  - Represent fractions as parts of unit wholes, as parts of a set, as locations on a number line, and as divisions of whole numbers.
  - Select and use one of the various algorithms to multiply and divide.
  - Solve multi-step number sentences and word problems using whole numbers and the four basic operations.
  - Demonstrate in simple situations how a change in one quantity results in a change in another quantity.
  - Solve problems with whole numbers using appropriate field properties.
  - Solve one-step linear equations with one missing value in isolation and in problem solving situations.
2. Provide each student with a copy of the “Tortillas” recording sheet and a copy of the rubric. Have student review and discuss the task to be completed and how the rubric will be used to evaluate it. The task includes:
  - Part A: Convert the recipe into one that serves 3 times as many people. Remind students to show all of their calculations on the paper provided. Answer Key:
    - 12 cups white flour
    - 12 tsp. Baking powder
    - 5  $\frac{1}{4}$  tsp. salt
    - 18 T. margarine
    - 3  $\frac{3}{4}$  cups water
  - Part B: Show how each of the ingredients was changed in the recipe.
    - $4 \times 3 = 12$  (flour)
    - $4 \times 3 = 12$  (baking powder)
    - $1 \frac{3}{4} + 1 \frac{3}{4} + 1 \frac{3}{4} = 5 \frac{1}{4}$  (salt)
    - $6 \times 3 = 18$  (margarine)
    - $1 \frac{1}{4} + 1 \frac{1}{4} + 1 \frac{1}{4} = 3 \frac{3}{4}$  (water)
  - Part C: Write a complete explanation of the task. (Students with writing difficulty should be allowed to explain/justify orally.)

3. Evaluate each student's work using the rubric as follows and use the guide on the rubric to determine the performance level.
- 4 = All the amounts of ingredients in the converted recipe were calculated correctly; the strategies to calculate the answer were appropriate and competently executed; explanation of the task was clear and complete.
  - 3 = The calculations or the recordings of the amounts of ingredients in the converted recipe may have minor errors, but not both; the strategies used were appropriate; the explanation was mostly clear and complete.
  - 2 = The calculations and the recordings of the amounts of ingredients in the converted recipe may have minor errors; the strategies used were somewhat appropriate; the explanation was not adequate.
  - 1 = The calculations and the recordings of the amounts of ingredients in the converted recipe may have major errors; the strategies used were for the most part inappropriate; the explanation did not match what the student did.
  - 0 = task not attempted.

#### **Examples of Student Work follow**

#### **Resources**

- Copies of the "Tortillas" recording sheet
- Mathematics Rubric

#### **Time Requirements**

- 15 - 30 minutes

NAME \_\_\_\_\_ DATE \_\_\_\_\_

### TORTILLAS

You have been asked to make 48 tortillas for a dinner party. This recipe makes only 16 tortillas:

- 4c. white flour
- 4 tsp. baking powder
- 1  $\frac{3}{4}$  tsp. salt
- 6 T. margarine
- 1  $\frac{1}{4}$  c. water

1. Change the recipe to make 48 tortillas. Write your new recipe here.

2. Show how you figured out how to change each ingredient in the recipe.

3. Explain what you did, how you did it, and why you did it.

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NAME \_\_\_\_\_

DATE 4/5/01

You have been asked to make tortillas for a dinner party. Here is a recipe to make 16 tortillas:

- 4C. White flour
- 4 tsp. Baking powder
- 1  $\frac{3}{4}$  tsp. Salt
- 6 T. margarine
- 1  $\frac{3}{4}$  C. Water

$$\begin{array}{r} 16 \\ \times 3 \\ \hline 48 \end{array}$$

You need to make 48 tortillas for the party. How will you have to change the recipe to make the new tortillas? Write your new recipe here.

I need to triple the recipe,

$$\begin{array}{r} 16 \\ \times 3 \\ \hline 48 \end{array}$$

Now, show the way you figured out how to change each ingredient in the recipe.

$$\begin{aligned} 4 \times 3 &= 12, \\ 4 + 4 + 4 &= 12, \\ 6 \times 3 &= 18 \\ 1\frac{3}{4} + 1\frac{3}{4} + 1\frac{3}{4} &= 3\frac{3}{4} \end{aligned}$$

Finally, explain in words (either orally or in writing) what you did, how you did it, and why you did it.

First I did  $4 \times 3 = 12$ ,  
 so that makes it 12c. flour  
 then I did  $4 + 4 + 4 = 12$   
 That made it 12c. Baking powder  
 Next I did  $6 \times 3 = 18$  and got 18c.  
 of margarine. then I did  $1\frac{3}{4} + 1\frac{3}{4} + 1\frac{3}{4} = 3\frac{3}{4}$   
 That was  $3\frac{3}{4}$  C. Water

NAME \_\_\_\_\_

DATE \_\_\_\_\_

You have been asked to make tortillas for a dinner party. Here is a recipe to make 16 tortillas:

- 4C. White flour
- 4 tsp. Baking powder
- 1  $\frac{3}{4}$  tsp. Salt
- 6 T. margarine
- 1  $\frac{1}{4}$  C. Water

You need to make 48 tortillas for the party. How will you have to change the recipe to make the new tortillas?

Write your new recipe here.

I need to triple the recipe  
 $16 \times 3 = 48$   
3 triple it  
 4C White flour  
 4Tsp. Baking powder  
 1  $\frac{3}{4}$  tsp salt  
 6T margarine  
 1  $\frac{1}{4}$  C. water

12C. White flour  
 12Tsp. Baking powder  
~~5~~  $\frac{1}{4}$  tsp. Salt  
 18 T. Margarine  
~~3~~  $\frac{3}{4}$  water

Now, show the way you figured out how to change each ingredient in the recipe.

I knew  $16 \times 3 = 48$  so I knew too triple every thing. 4C White flour  $\times 3 = 12$ . 4Tsp. Baking powder  $\times 3 = 12$ .  $1\frac{3}{4}$  tsp salt  $\times 3 = 5\frac{1}{4}$ . 6T margarine  $\times 3$  equals 18.  $1\frac{1}{4}$  times 3 equals  $3\frac{3}{4}$ .

Finally, explain in words (either orally or in writing) what you did, how you did it, and why you did it.

First I looked at the recipe of 16 tortillas and then looked at how many 16 tortillas I needed to make and  $16 \times 3 = 48$ . So I timed everything by three. And that's my answer.