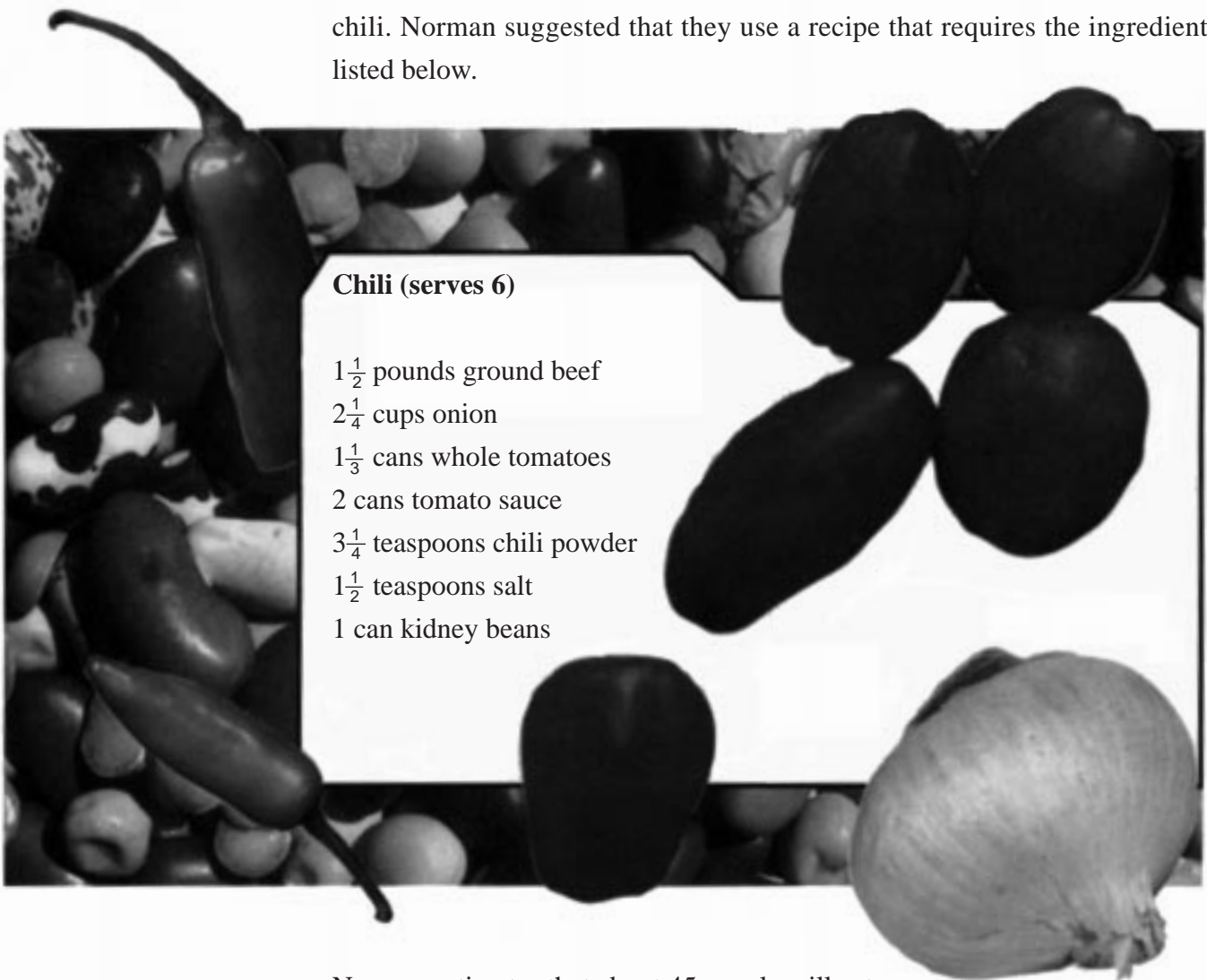


Name: _____ Date: _____

A Chili Day

Proportions

Norman's club is planning a carnival. The menu for the food booth includes chili. Norman suggested that they use a recipe that requires the ingredients listed below.



Chili (serves 6)

- $1\frac{1}{2}$ pounds ground beef
- $2\frac{1}{4}$ cups onion
- $1\frac{1}{3}$ cans whole tomatoes
- 2 cans tomato sauce
- $3\frac{1}{4}$ teaspoons chili powder
- $1\frac{1}{2}$ teaspoons salt
- 1 can kidney beans

Norman estimates that about 45 people will eat chili at the carnival. Determine how much of each ingredient they will need to make this amount of chili.

Thinking Cap



Advance ticket sales for the food booth were better than expected. Ninety tickets were purchased in advance. Determine how much of each ingredient they will now need. Explain how you found this answer. Why did you see this method? Can you think of any other ways to find the answer?

A Chili Day

Proportions

Topic: Solving Proportions

Objective: To use the calculator to solve problems involving proportions.

NCTM Standards: Problem Solving, Number Systems and Theory

Using the Activity

Students use the calculator in this activity to solve proportions.

- The **b/c** key can be used to enter fractions.
- The **a** and **b/c** keys can be used to enter mixed numbers.

Example To find the amount of ground beef needed to serve 45 people, first write the proportion $\frac{6}{1\frac{1}{2}} = \frac{45}{x}$. Next cross multiply to get $6x = 45 \cdot 1\frac{1}{2}$. To solve, enter **(** 45 **X** 1 **a** 1 **b/c** 2 **)** **÷** 6 **=** $11\frac{3}{4}$. Then press **=** to simplify the mixed number. They need $11\frac{1}{4}$ pounds of ground beef.

Assessment Students should be encouraged to check their answers by using decimals instead of fractions to calculate their answers. They should use the **F-D** key to change the final decimal answers to fractions.

Answers

ground beef: See example.

onion: $\frac{6}{2\frac{1}{4}} = \frac{45}{x}$; $6x = 45 \cdot 2\frac{1}{4}$; **(** 45 **X** 2 **a** 1 **b/c** 4 **)** **÷** 6 **=** $16\frac{21}{24}$ **=** $16\frac{7}{8}$

whole tomatoes: $\frac{6}{1\frac{1}{3}} = \frac{45}{x}$; $6x = 45 \cdot 1\frac{1}{3}$; **(** 45 **X** 1 **a** 1 **b/c** 3 **)** **÷** 6 **=** 10

tomato sauce: $\frac{6}{2} = \frac{45}{x}$; $6x = 45 \cdot 2$; **(** 45 **X** 2 **)** **÷** 6 **=** 15

chili powder: $\frac{6}{3\frac{1}{4}} = \frac{45}{x}$; $6x = 45 \cdot 3\frac{1}{4}$; **(** 45 **X** 3 **a** 1 **b/c** 4 **)** **÷** 6 **=** $24\frac{9}{24}$ **=** $24\frac{3}{8}$

salt: $\frac{6}{1\frac{1}{2}} = \frac{45}{x}$; $6x = 45 \cdot 1\frac{1}{2}$; **(** 45 **X** 1 **a** 1 **b/c** 2 **)** **÷** 6 **=** $11\frac{3}{12}$ **=** $11\frac{1}{4}$

kidney beans: $\frac{6}{1} = \frac{45}{x}$; $6x = 45 \cdot 1$; 45 **÷** 6 **=** 7.5 **F-D** $7\frac{1}{2}$

Thinking Cap Answer

One way to find the answer is to multiply each amount in the ingredient list for 45 people by 2. So, they will need $22\frac{1}{2}$ pounds ground beef, $33\frac{3}{4}$ cups onions, 20 cans whole tomatoes, 30 cans tomato sauce, $48\frac{3}{4}$ teaspoons chili powder, $22\frac{1}{2}$ teaspoons salt, and 15 cans kidney beans. Another way to find these answers is to set up proportions and solve. Answers as to why a particular method was used will vary.