EXAMPLE 2   **Using Order of Operations**

There are 1950 calories in a cup of salad oil, 55 calories in an egg yolk, and 16 calories in a teaspoon of sugar. The other ingredients in the mayonnaise recipe are essentially calorie free. How many calories are in the mayonnaise recipe?

Homemade Mayonnaise

* 2 egg yolks
* ½ tsp powdered mustard
* Pinch cayenne pepper
* 1 ½ cups salad oil

* ³⁄₄ tsp salt
* ¼ tsp sugar
* 4 ½ tsp white vinegar
* 4 tsp hot water

Preparation:

Beat yolks, salt, mustard, sugar, pepper, and 1 teaspoon vinegar until thick and pale yellow. Add about ¼ cup oil, drop by drop, beating vigorously. Beat in 1 teaspoon each vinegar and hot water. Add another ¼ cup oil, a few drops at a time, beating vigorously. Beat in another teaspoon each vinegar and water. Add ½ cup oil in a fine steady stream, beating constantly. Mix in remaining vinegar and water. Slowly beat in remaining oil. Cover and refrigerate until needed. Do not keep longer than 1 week.

Some historians say that mayonnaise originated in Bayonne, France, and was originally called bayonnaise.

SOLUTION

1.5 cups of salad oil   2 egg yolks   Quarter teaspoon of sugar

Total calories $= 1.5(1950) + 2(55) + 0.25(16)$

$= 2925 + 110 + 4$ Multiply.

$= 3039$ Add.

There are 3039 calories in the recipe.

✓ **Checkpoint**   Help at *Math*.and**Y⊕U**.com

The total number of teaspoons in the mayonnaise recipe is given by the expression below.

3 tsp in an egg yolk   Mustard   48 tsp in a cup   Salt   Sugar   Vinegar   Water

$2(3) + 0.5 + 1.5(48) + 0.75 + 0.25 + 4.5 + 4$

a. How many teaspoons are in the recipe?

b. How many calories are in a teaspoon of mayonnaise?