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Math Project: Pretzels=knots

Math has always been my toughest subject, and all through school I struggled to understand it, that is until now. This class has changed the way I think about math, and the way I think about numbers in general.

I love to bake, and never realized how much math is involved in baking, from the measuring to the temperature your cooking at and the temperature of your ingredients all play a major role. Having to multiply a recipe by two or three, or having to make it smaller depending on what I am making and how much of it I am making. When you are baking measuring is everything. If you do not use the correct measurement's it will ruin whatever you were making.

I made homemade pretzels in the shape of trefoil knots, tasty and mathematical. Math was used in every part of my project. First I had to double my recipe, by multiplying all ingredients and fractions by 2. Once I got my calculations done I was ready to start measuring. Pretzels use yeast, so the temperature of everything has to be perfect of they won't rise properly and you won't have pretzels. Once I checked the temperature of my water and butter I was ready to mix my ingredients together. The first phase is the mixing, then kneading the dough and letting it rest or it can rise.

Once the dough is done resting, its time to divide the dough up into 12 sections. I then roll each section out into a 18-20 in lop section of dough, once that is done I cut each piece in half. Leaving me with 24 pieces of 9-10 in pieces of dough. Now its time to make some knots. Trefoil knots, have 3 crossings and so I begin making my pretzel trefoil knots.

Time to cook my trefoil knot pretzels. Just as mathematics was in every step to make the dough, its in every step of the cooking process as well. First I bring 12 cups of water and 2/3 cup of baking soda to a boil. The water needs to be a rolling boil, so a boil you cannot stir down. This part is every important, the pretzels only boil for 30 seconds on each side. The longer they stay in the water bath, the chewier they will be. After boiling the pretzels I brush them with egg wash, sprinkle with salt. They bake for 10 minutes at 400 degrees, once pulled from oven they are brushed with butter and set aside to cool.

For a person who always claimed they hated math, I sure do use it a lot. Cooking and baking is something I truly love to do, and it would be impossible to create these tasty treats if it wasn't for math.

Pretzel Trefoil Knot recipe calculations:

1 cup water x 2= 2 cups water (98 degrees)

1 tablespoon room temperature butter x 2= 2 tablespoons butter

2 tablespoons sugar x 2= 4 tablespoons sugar

1 teaspoon salt x 2= 2 teaspoons salt

2 $\frac{3}{4}$ cup flour x 2= 5 $\frac{1}{2}$ cups flour

2 teaspoons yeast x 2= 4 teaspoons yeast

6 cups water for boiling x 2= 12 cups water

$\frac{1}{3}$ cup baking soda x 2= $\frac{2}{3}$ cup baking soda

1 egg x 2= 2 eggs

3 tablespoons melted butter x 2= 6 tablespoons butter

2 teaspoons course salt x 2= 2 teaspoons salt