Cookie Stoichiometry

Use the attached cookie recipe to answer the following questions. Be sure to show your work and cross out units.

1. Write 3 ratios that can be used from this recipe.

2. If you make 45 cookies, how many batches is this?

3. How many cups of brown sugar are needed to completely “react” with 8 eggs?

4. How many batches of cookies can be made from 1 cup of morsels?
5. If you start out with 4 eggs and 3 cups of flour, which one will run out first? This is called the “limiting reactant”.

6. Using the information from #5, how many batches can you make if you have plenty of the other ingredients?

7. Which ingredient did you use to get the answer to #6, the eggs or the flour?

8. How many cookies is this?

9. If you had enough ingredients to make a batch of cookies and you made 53 cookies (you probably ate the rest of the dough!), what is your percent yield?
Stoichiometry is a process in which the equation for a chemical reaction is used like a recipe. We will do mass to mass problems, limiting reactant problems, and percent yield problems just like we did with this cookie recipe. It will be a piece of cake!!

**Original Nestle Tollhouse Cookie Recipe Ingredients:**

2 1/4 cups all-purpose flour  
1 teaspoon baking soda  
1 teaspoon salt  
1 cup (2 sticks) butter or margarine, softened  
3/4 cup granulated sugar  
3/4 cup packed brown sugar  
1 teaspoon vanilla extract  
2 large eggs  
2 cups (12 oz. pkg.) NESTLÉ TOLL HOUSE Semi-Sweet Chocolate Morsels

PREHEAT oven to 375° F. COMBINE flour, baking soda and salt in small bowl. Beat butter, granulated sugar, brown sugar and vanilla extract in large mixer bowl until creamy. Add eggs one at a time, beating well after each addition. Gradually beat in flour mixture. Stir in morsels and nuts. Drop by rounded tablespoon onto ungreased baking sheets. BAKE for 9 to 11 minutes or until golden brown. Cool on baking sheets for 2 minutes; remove to wire racks to cool completely.  
11 minutes, 375° Makes 60 cookies.