



How to Scale a Recipe

Frequently in baking, you may need to increase or decrease a recipe to adjust the yield. This is called scaling. The good news is that it doesn't matter whether you're increasing or decreasing a recipe — the method for adjusting the ingredient quantities is the same. The knowledge and ability to correctly scale a recipe is a very important skill to have.

The method for adjusting ingredient amounts is simple: **Multiply by the scaling factor.**

What might not seem as simple is finding the scaling factor. Two cases are described below to help you figure out the scaling factor and how to use it.

1. The scaling factor is given.

For example, you want to double a recipe, or prepare a third of the recipe.

a) Write down the scaling factor.

If the recipe is doubled – the scaling factor is 2.

If the recipe is tripled – the scaling factor is 3.

If the recipe is halved – the scaling factor is $\frac{1}{2}$.

If you want a third of the recipe, the scaling factor is $\frac{1}{3}$.



b) Multiply the ingredient amounts by the scaling factor and round the answers as needed.

Example 1: The following recipe is given. Determine the amounts needed to prepare $\frac{1}{4}$ of the recipe amount.

| | |
|---------------|--------|
| Flour | 1040 g |
| Sugar | 100 g |
| Butter | 300 g |
| Baking powder | 40 g |
| Salt | 1 tsp |

Answer: The scaling factor is given, $\frac{1}{4}$. Take this factor and multiply all ingredient amounts by it.

| | |
|---------------|---|
| Flour | $1040 \text{ g} \times \frac{1}{4} = 260 \text{ g}$ |
| Sugar | $100 \text{ g} \times \frac{1}{4} = 25 \text{ g}$ |
| Butter | $300 \text{ g} \times \frac{1}{4} = 75 \text{ g}$ |
| Baking powder | $40 \text{ g} \times \frac{1}{4} = 10 \text{ g}$ |
| Salt | $1 \text{ tsp} \times \frac{1}{4} = \frac{1}{4} \text{ tsp.}$ |



2. **You know the total quantity you want** out of a recipe (whether it's a weight, a volume, or number of baked goods), **but not the scaling factor**. For example, if a recipe yields 4580 g dough, but you want to end up with 6000 g of dough, what is the scaling factor?



- a) Write down the amount you WANT.
 b) Write down the amount the original recipe YIELDS.
 These must be in the same units before you proceed
 c) The scaling factor is a fraction:

$$\frac{\text{Amount Wanted}}{\text{Original Yield}}$$

- d) **Multiply all the ingredient amounts by the scaling factor.**
 If the scaling factor is not a neat fraction (like $\frac{1}{4}$ or $\frac{2}{3}$), you can round the fraction to something close.

Example 2: The following recipe yields 300 mL of Hollandaise sauce. Determine the ingredient amounts needed to prepare 1 L of sauce.

| | |
|--------------------|--------|
| White wine vinegar | 500 mL |
| Egg yolks | 3 |
| Unsalted butte | 200 mL |
| Peppercorn | 1 tbsp |

Answer: We need to find the scaling factor first. The amount we want is 1 L, the amount the recipe yields is 300 mL We need these to be in the same units first. $1 \text{ L} \times 1000\text{mL/L} = 1000 \text{ mL}$. The scaling factor is:

$$\frac{1000 \text{ mL}}{300 \text{ mL}} = 3.3$$

Now we multiply all the ingredient amounts by 10, the scaling factor.

| | |
|--------------------|--|
| White wine vinegar | $500 \text{ mL} \times 3.3 = 1650 \text{ mL} \text{ (1.65 L)}$ |
| Egg yolks | $3 \times 3.3 = 9.9 \approx 10$ |
| Unsalted butter | $200 \text{ mL} \times 3.3 = 660 \text{ mL}$ |
| Peppercorn | $1 \text{ tbsp} \times 3.3 = 3.3 \text{ tbsp}$ <i>*note spices are not generally scaled by the same amount as the rest of the recipe*</i> |

Using these two methods, you should be able to master scaling any recipe!



Practice Problems

1. If a recipe yields 5000 g of dough, but you only want to prepare 4000 g of dough, what is the scaling factor you should use?
2. A matzo ball soup recipe makes 12 L. Your chef asks you to prepare 15 L of soup. What is the scaling factor?
3. Amanda is preparing a fig balsamic vinaigrette. The original recipe calls for 130 g of dried figs. If she has 340 g of dried figs, will that be enough to triple the recipe?
4. Steve has a recipe that yields 96 croissants. He only wants to make 24 croissants. If the amount of butter required for the original recipe is 3 lbs, how much butter will he need for 24 croissants?
5. If a batch recipe of 1375 g of dough yields 2 loaves of ciabatta bread, how much dough is needed for 48 loaves? (give answer in kg)
6. The recipe for Danish pastry dough yields a total dough weight of 1850 g. If you want to prepare 48 apricot pinwheels, and each pinwheel requires 400 g of dough, what is the scaling factor? How much total dough weight will you need?
7. Scale the following recipe to prepare 75 portions

| Ingredients | Yield: 15 portions |
|-----------------------|--------------------|
| Lean chuck, 1" cubes | 4 lb |
| Bacon, diced | ½ lb |
| Pearl onions, peeled | 1 dozen |
| Mushrooms, chopped | ½ lb |
| Garlic cloves, minced | 2 |
| Tomato paste | 2 Tbs |
| Parsley, chopped | ½ c |
| oregano | ½ tsp |

8. The recipe below is for muffins. Each muffin requires 5 oz of raw dough. Scale the following recipe to prepare 48 large muffins.

| Ingredients | Weight | Bakers % |
|---------------------|------------|----------|
| Pastry flour | 2 lb 8 oz | 100 |
| Sugar | 1 lb 4 oz | 50 |
| Baking powder | 2.5 oz | 6 |
| Salt | 0.5 oz | 1.25 |
| Eggs, beaten | 12 oz | 30 |
| Milk | 1 lb 12 oz | 70 |
| Vanilla | 1 oz | 25 |
| Butter, melted | 1 lb | 40 |
| Total Weight | 7 lb 8 oz | 299 |



Answers

1. 0.8 or $\frac{4}{5}$
2. 1.25 or $1\frac{1}{4}$
3. No, tripling the recipe would require 390 g of dried figs. She is 50 g short.
4. Scaling factor is $\frac{1}{4}$; he will need $\frac{3}{4}$ lb of butter
5. 33 kg dough
6. Scaling factor ~ 10.5 ; prepare 19.4 kg of dough
7. Scaling factor = $\frac{75}{15} = 5$

| Ingredients | Yield: 15 portions |
|-----------------------|-----------------------------------|
| Lean chuck, 1" cubes | 20 lb |
| Bacon, diced | 2 $\frac{1}{2}$ lb |
| Pearl onions, peeled | 5 dozen |
| Mushrooms, chopped | 2 $\frac{1}{2}$ lb |
| Garlic cloves, minced | 10 |
| Tomato paste | 10 Tbs = $\frac{1}{2}$ c. + 2 Tbs |
| Parsley, chopped | 2 $\frac{1}{2}$ c |
| oregano | 1 tsp |

8. The total dough weight is 7lb 8oz. Convert the total weight to ounces and divide by the dough weight for each muffin: $120\text{oz}/5\text{oz} = 24$ muffins.
 48 muffins/ 24 muffins = 2 (scaling factor).

| Ingredients | Weight | % |
|---------------------|-----------|------|
| Pastry flour | 5 lb | 100 |
| Sugar | 2 lb 8 oz | 50 |
| Baking powder | 5 oz | 6 |
| Salt | 1 oz | 1.25 |
| Eggs, beaten | 1 lb 8 oz | 30 |
| Milk | 3 lb 8 oz | 70 |
| Vanilla | 2 oz | 25 |
| Butter, melted | 2 lb | 40 |
| Total Weight | 15 lb | 299 |

