All About Fractions!

Half

A third

A quarter

A fifth

1. What IS a Fraction?

Imagine you have a whole pizza. You're hungry, but your friend is too. So you cut the pizza into 2 equal pieces. Each piece is a HALF of the pizza.

That's a fraction! A fraction is a way of talking about a PART of something that's been split into EQUAL pieces.

One WHOLE pizza:

One pizza, cut in HALF — you eat one half:

One pizza, cut into 4 EQUAL pieces — you eat one piece:

> 📌 **Big Idea**
>
> A fraction tells you about EQUAL parts of a whole.
>
> When the pizza is cut into 4 equal pieces and you eat 1 piece, you ate ONE FOURTH of the pizza.

2. The Two Numbers of a Fraction

Every fraction has TWO numbers. They are stacked on top of each other, like this:

Meet the fraction: three fourths

3 ← *How many you HAVE*

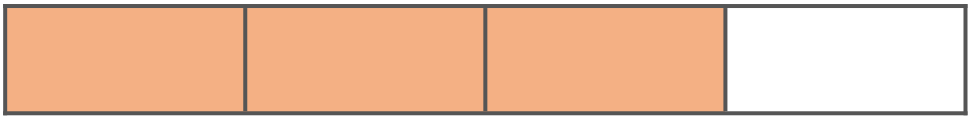
$$\frac{3}{4}$$

4 ← *How many EQUAL parts the whole is split into*

> 📌 **Two Important Words**
>
> **Numerator** — the TOP number. It says how many parts you have.
>
> **Denominator** — the BOTTOM number. It says how many equal parts the whole is split into.
>
> ***Memory trick: Denominator is Down (both start with D!)***

So when you see 3/4 , here's what it means:

Three fourths of a chocolate bar (3 out of 4 pieces shaded):



3. Equal Parts Are SUPER Important

Here's the tricky thing: the parts MUST be equal in size for it to be a real fraction.

✅ **This shows fourths (the 4 pieces are equal):**

❌ **This is NOT fourths (the pieces are NOT equal):**

📌 **Remember!**

If the pieces aren't equal in size, it's not a fraction — it's just a shape cut into uneven pieces.

4. Meet the Fraction Family

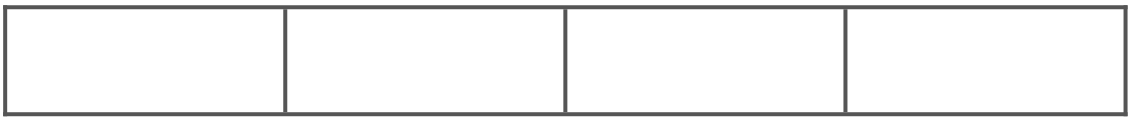
Here's a whole family of fractions, all shown as bars. Each bar is the same TOTAL size — but split into different numbers of pieces.

1 whole (no fraction)

Halves (1/2)

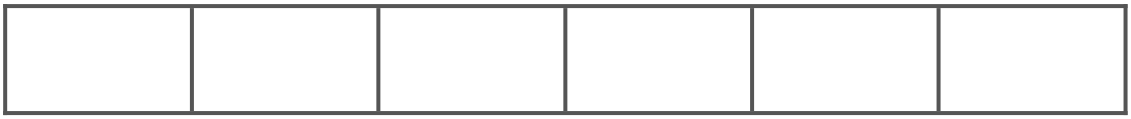
Thirds (1/3)

Fourths or quarters (1/4)



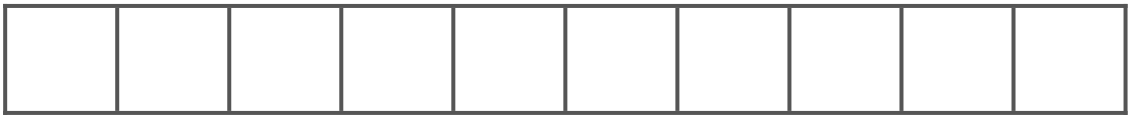
Fifths (1/5)

Sixths (1/6)



Eighths (1/8)

Tenths (1/10)



📌 **Notice this!**

The bigger the bottom number (denominator), the SMALLER each piece is.

One eighth of a pizza is much smaller than one half of a pizza — even though the WHOLE pizza is the same size!

5. Same Fraction, Different Look

Some fractions look different on paper but show the SAME AMOUNT. We call these EQUIVALENT fractions.

Look at these:

1/2 — half is shaded

2/4 — half is shaded (the SAME amount, just cut into more pieces!)

4/8 — STILL half!

📌 **Cool Fact**

1/2 = 2/4 = 3/6 = 4/8 = 5/10

All of these are exactly the same amount! They're all HALF.

How do you make an equivalent fraction? Just multiply (or divide) the top AND the bottom by the same number.

Example: 1/2 × 2/2 = 2/4 (multiply top and bottom by 2)

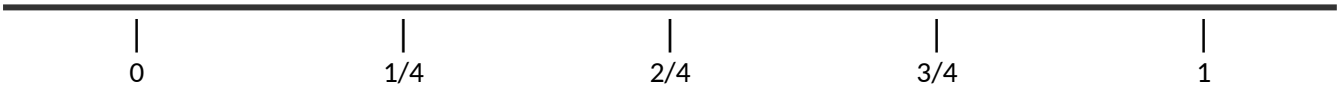
Example: 3/4 × 25/25 = 75/100 (multiply top and bottom by 25)

6. Fractions Live on the Number Line, Too!

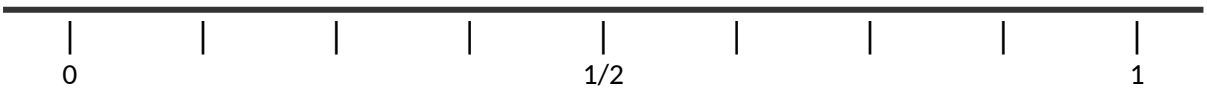
Fractions aren't just for cutting pizza. They're real NUMBERS — and they sit on the number line between the whole numbers.

A number line from 0 to 1, cut into halves:

Cut into fourths:



Cut into eighths:

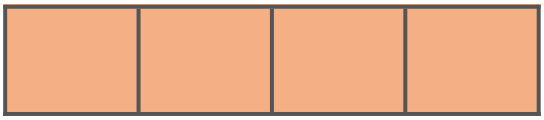


Notice that 1/2 lines up with 2/4 and with 4/8 — they're all in the same SPOT on the number line. That's exactly why we call them equivalent!

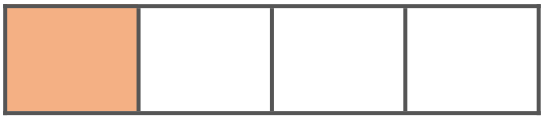
7. Fractions Bigger Than 1

Sometimes you have MORE than one whole. Imagine you ate 1 whole pizza AND a slice from a second pizza. You ate more than 1!

One WHOLE pizza:



PLUS one fourth of a second pizza:



You ate 5 quarters total. There are TWO ways to say this:

📌 **Two Ways to Say It**

Improper fraction: **5/4** **(five fourths)**

Mixed number: **1 1/4** **(one and one fourth)**

Both mean the same thing! An IMPROPER FRACTION has a numerator bigger than its denominator. A MIXED NUMBER is a whole number plus a fraction.

How to switch between them:

Improper → Mixed: Divide. 5 ÷ 4 = 1 with remainder 1, so 5/4 = 1 1/4.

Mixed → Improper: Multiply the whole number by the denominator, add the numerator. 1 × 4 + 1 = 5, so 1 1/4 = 5/4.

8. Comparing Fractions: Which One Is Bigger?

Which is bigger: 1/2 or 1/3? Let's look at the bars!

1/2

1/3

📌 **Surprising Rule**

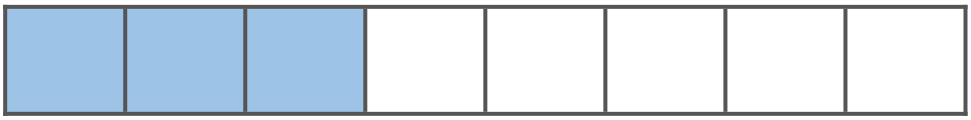
1/2 is BIGGER than 1/3!

When the TOP number is the same (both are "1"), the fraction with the SMALLER bottom number is bigger.

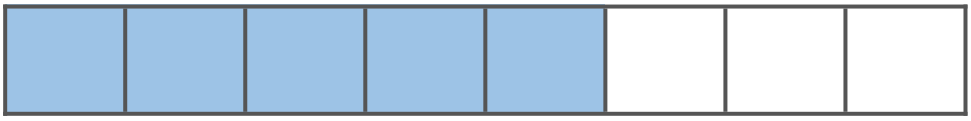
Why? Because if you split a pizza into FEWER pieces, each piece is BIGGER!

Now compare 3/8 and 5/8:

3/8



5/8



When the bottom numbers are the SAME, just compare the top numbers. 5 is bigger than 3, so 5/8 is bigger than 3/8.

📌 **The Two Rules**

Same denominator (bottom)? Bigger numerator wins.

Same numerator (top)? SMALLER denominator wins (because the pieces are bigger).

Different both? Convert to a common denominator first, then compare.

9. Fractions Are EVERYWHERE!

Once you start looking, you'll see fractions all around you:

🍕 Food

Half a sandwich. A quarter of a pizza. Three quarters of a bag of chips. Cooking measurements (½ cup of flour, ¼ teaspoon of salt).

⏰ Time

Half an hour (30 minutes). A quarter past 3 (3:15). Half past 6 (6:30). 15 minutes is one quarter of an hour.

💰 Money

A quarter is ¼ of a dollar (25¢). A dime is 1/10 of a dollar. Two quarters make ½ a dollar.

🎵 Music

Quarter notes, half notes, whole notes — musicians use fractions all the time to talk about how long a note lasts!

⚽ Sports

Football has 4 quarters. Basketball has halves. A baseball game is split into innings (1/9 of the game each).

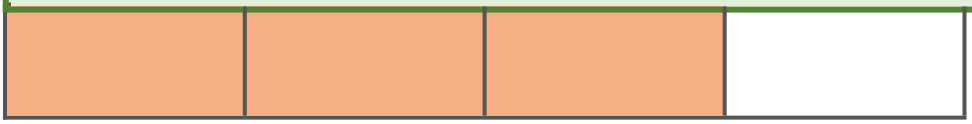
📏 Measuring

A ruler shows halves, quarters, eighths, and sixteenths of an inch. A half-cup measuring cup helps you bake.

10. Try It Yourself!

Try this!

Question 1: Look at this fraction bar. What fraction is shaded?



Your answer: _____

Try this!

Question 2: If a pizza is cut into 8 equal pieces and you eat 3 of them, what fraction did you eat?

Your answer: _____

Try this!

Question 3: Which is bigger: 1/4 or 1/6? Why?

Your answer: _____

Try this!

Question 4: Write three fractions that all equal 1/2.

_____ , _____ , _____

Try this!

Question 5: Look around your room right now. Can you find ONE thing that you could describe with a fraction? (Hint: think about half of something, or a quarter of something!)

My example: _____

Answers

1) 3/4 2) 3/8 3) 1/4 is bigger — fewer pieces means bigger pieces

4) Examples: 2/4, 3/6, 4/8, 5/10, 50/100, ... 5) Your own answer!

You're a fraction expert!

Now go find some fractions in the real world!