



MATH WITH MR DJ

GRADE 5 · NUMBER & OPERATIONS — FRACTIONS

DIVIDING WITH UNIT FRACTIONS

Today's goal: I can divide unit fractions by whole numbers and whole numbers by unit fractions.



Tan



Digit



Blaze



Pi



Ask it in words

1 How many halves fit in 6?

TURN & TALK

Two per whole, six wholes. Twelve.



Nobody finds that strange

1 The words are easy. The symbols are not.

2 $6 \div \frac{1}{2} = 12$.

REMEMBER

The strangeness is in the notation, not the maths.



BIG IDEA 2

Why 3 feels right

- 1 “Divide by a half” sounds like “halve it”.
- 2 And dividing has always made things smaller.

REMEMBER

Every divisor you have used was bigger than 1.



BIG IDEA 3

Check it backwards

1 12 halves = 6. Correct.

2 3 halves = $1\frac{1}{2}$. Not 6.

REMEMBER

Multiply back. It settles it.



BIG IDEA 4

The OTHER question

1 $\frac{1}{2} \div 6$: a half shared between six.

2 Cut a half into 6 $\rightarrow$ twelfths.

REMEMBER

1/12. Same numbers. Very different question.



BIG IDEA 5

Which question is it?

- 1 How many fit? → answer is BIGGER.
- 2 How much each? → answer is SMALLER.

REMEMBER

12 or 1/12. Size tells you which.



Something went wrong here...

THE PROBLEM

Work out $\frac{1}{2} \div 5$

WHAT A STUDENT DID

Answered 10 — the opposite question's answer.
Reading the division aloud as “a half shared between five” makes 10 plainly absurd.

YOUR MISSION

What went wrong? What's the right answer?



Work out $\frac{1}{2} \div 5$

- 1 A half cut into five gives tenths — $\frac{1}{10}$.
- 2 Smaller than the half started with.
- 3 Check: five tenths make a half.

Answer:

$\frac{1}{10}$



Pick your pepper!



MILD

Work out $3 \div \frac{1}{4}$

#1 on your practice sheet



MEDIUM

A 4-metre plank is cut into half-metre pieces. How many pieces? Multiply back to check.

#6 on your practice sheet



SPICY

A child answers $\frac{1}{2} \div 6 = 12$. Show that this is impossible without doing the division.

#9 on your practice sheet

How's it going?



3 • Got it!

I could teach it



2 • Almost

One more example, please



1 • Not yet

I need some help



MATH WITH MR DJ

NOW YOU!

Practice sheet: everyone does Mild & Medium, then climb the peppers.

Stuck? Look back at Mr DJ's example at the top of the sheet.

Need it again? Watch "Dividing With Fractions: Step By Step Guide" on YouTube @MathWithMrDJ

Brain break: 3 new daily puzzles at puzzles.mathwithmrdj.com

