



MATH WITH MR DJ

GRADE 7 · THE NUMBER SYSTEM

FOUR OPERATIONS WITH RATIONAL NUMBERS

Today's goal: I can add rational numbers to solve mathematical problems, add rational numbers to solve real-world problems, subtract rational numbers to solve mathematical problems, subtract rational numbers to solve real-world problems, multiply rational numbers to solve mathematical problems, multiply rational numbers to solve real-world problems, divide rational numbers to solve mathematical problems and divide rational numbers to solve real-world problems.



Tan



Digit



Blaze



Pi



WARM-UP

Turn & talk · 1 min

The temperature falls 3 degrees each hour, for 4 hours

1 What is the total change?

TURN & TALK

is it -7 or -12 ?



The situation picks the operation

- 1 One change $\rightarrow$ ADD the signed amount.
- 2 Repeated change $\rightarrow$ MULTIPLY.
- 3 Gap or comparison $\rightarrow$ SUBTRACT. $\cdot$ Sharing $\rightarrow$ DIVIDE.



BIG IDEA 2

$$-3 \times 4 = -12$$

- 1 “Each hour” signals a repeated change.
- 2 $-3 + (-4) = -7$ adds degrees to hours — which are not the same thing.

REMEMBER

Ask what each number MEASURES before combining them.



BIG IDEA 3

Finish in words

1 -12 means twelve degrees COLDER.

2 $-\$15$ means overdrawn by $\$15$.

REMEMBER

A signed number is not an answer until you say what it means.



BIG IDEA 4

Let the answer surprise you

1 A diver at -200 m rises 350 m $\rightarrow +150$ m.

2 That is 150 m ABOVE the water.

REMEMBER

**The arithmetic does not know the context.
You do.**



Remember

- 1 Decide the operation from the situation.
- 2 A single change → **add** the signed amount.
- 3 A repeated change → **multiply**.



Pick your pepper!



MILD

An account holds \$120. A payment of \$95 goes out. What is the balance?

#1 on your practice sheet



MEDIUM

Three separate charges of \$18 are made. What is the total change to the balance?

#2 on your practice sheet



SPICY

Starting from \$120, apply the \$95 payment and the three \$18 charges. What is the final balance? Say what it means.

#7 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

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? Step-by-step videos on YouTube @MathWithMrDJ

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

