



MATH WITH MR DJ

GRADE 7 · EXPRESSIONS & EQUATIONS

FACTORING & EXPANDING LINEAR EXPRESSIONS

Today's goal: I can expand linear expressions with rational coefficients.



Tan



Digit



Blaze



Pi



WARM-UP

Turn & talk · 1 min

$$3(2x + 5)$$

1 Expand it.

TURN & TALK

is it $6x + 5$ or $6x + 15$?



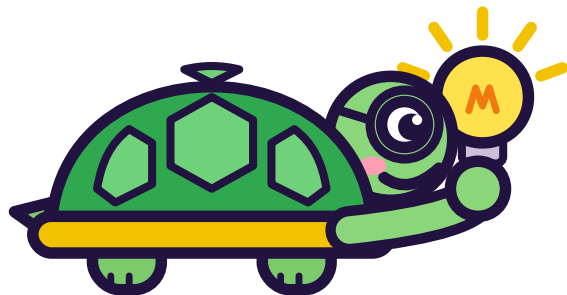
The outside multiplies EVERY term

1 $3 \times 2x = 6x$

2 $3 \times 5 = 15 \rightarrow 6x + 15$

REMEMBER

$6x + 5$ means the 3 reached the first term and stopped.



BIG IDEA 2

Watch the signs

1 $-2(4x - 3) = -8x + 6$

2 $-2 \times -3 = +6$. Same signs multiply positive.



BIG IDEA 3

Factoring: pull out the **GREATEST** common factor

1 $12x + 18$: GCF of 12 and 18 is 6.

2 $12x + 18 = 6(2x + 3)$

REMEMBER

$2(6x + 9)$ is correct – but not finished. $6x + 9$ still shares a 3.



BIG IDEA 4

They undo each other

1 Expand $6(2x + 3) \rightarrow 12x + 18$. Back to the start.

REMEMBER

But the expand check proves CORRECT, not COMPLETE. Check the bracket too.



SPOT THE SLIP!

Turn & talk

Digit found a slip...

THE PROBLEM

Expand $5(x - 4)$.

WHAT A STUDENT DID

Answered $5x - 4$.

YOUR MISSION

What went wrong? What's the right answer?



Expand $5(x - 4)$.

1 $5 \times x = 5x$

2 $5 \times (-4) = -20.$

3 Remember x means $1x$.

Answer:

$5x - 20$



YOUR TURN

Whiteboards up!

Pick your pepper!



◀ MILD

Expand $4(3x + 2)$.

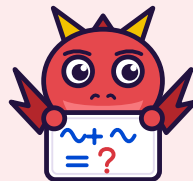
#1 on your practice sheet



◀◀ MEDIUM

Expand $-3(2x + 7)$.

#2 on your practice sheet



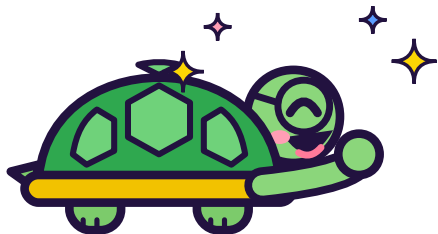
◀◀◀ SPICY

A student factors $20x + 30$ as $2(10x + 15)$. Is this wrong? Explain precisely, and give the complete factoring.

#8 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? Step-by-step videos on YouTube @MathWithMrDJ

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

