



MATH WITH MR DJ

GRADE 6 · EXPRESSIONS & EQUATIONS

EXPANDING & FACTORING EXPRESSIONS

Today's goal: I can apply the distributive property to expand simple expressions.



Tan



Digit



Blaze



Pi



WARM-UP

Turn & talk · 1 min

Is $3(x + 4)$ the same as $3x + 4$?

1 Decide before we test it.

TURN & TALK

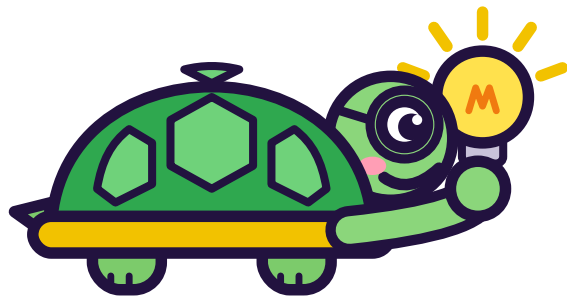
yes or no?



Expanding: reach EVERY term

1 The number outside multiplies each term inside — not just the first.

2 $3(x + 4) = 3 \cdot x + 3 \cdot 4$



BIG IDEA 2

$$3(x + 4) = 3x + 12$$

1 Test at $x = 5$: $3(9) = 27$

2 $3x + 12 \rightarrow 15 + 12 = 27 \checkmark$

3 $3x + 4 \rightarrow 15 + 4 = 19 \times$

REMEMBER

Substituting a value settles any dispute.



BIG IDEA 3

Factoring: the same move backwards

1 $6x + 9 \rightarrow \text{GCF is } 3 \rightarrow 3(2x + 3)$

2 Divide EVERY term by the GCF, not just one.



BIG IDEA 4

Finished only when nothing is shared

1 $24x + 36 = 4(6x + 9) \rightarrow \text{TRUE}$, but 6 and 9 still share 3

2 $24x + 36 = 12(2x + 3) \rightarrow \text{fully factored } \checkmark$

REMEMBER

True and finished are different tests.



SPOT THE SLIP!

Turn & talk

Digit found a slip...

THE PROBLEM

Expand $3(2x + 5)$.

WHAT A STUDENT DID

Answered $6x + 5$, or $5x + 8$ (added the coefficients).

YOUR MISSION

What went wrong? What's the right answer?



Expand $3(2x + 5)$.

1 $3 \cdot 2x = 6x$

2 $3 \cdot 5 = 15.$

Answer: $6x + 15$



YOUR TURN

Whiteboards up!

Pick your pepper!



◀ MILD

Expand $2(x + 7)$.

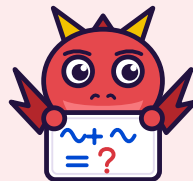
#1 on your practice sheet



◀◀ MEDIUM

Expand $7(x + 3)$.

#3 on your practice sheet



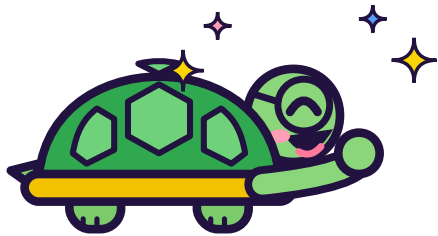
◀◀◀ SPICY

Factor $15x + 20$, then
check your answer by
expanding it back.

#6 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

