



MATH WITH MR DJ

GRADE 6 · EXPRESSIONS & EQUATIONS

EXPRESSIONS WITH VARIABLES

Today's goal: I can write numerical expressions in which letters stand for numbers and evaluate numerical expressions in which letters stand for numbers.



Tan



Digit



Blaze



Pi



WARM-UP

Turn & talk · 1 min

Evaluate $2 + 3x$ when $x = 4$

1 Work it out silently.

TURN & TALK

is it 14 or 20?



Two rules that fix almost everything

1 **$3x$ means $3 \times x$.** Side by side means multiply.

2 **Substitute in parentheses**, then follow the order of operations.



BIG IDEA 2

$2 + 3x$ at $x = 4$

1 $2 + 3(4)$

2 Multiply first: $2 + 12$

3 $= 14$

REMEMBER

20 comes from adding $2 + 3$ first. The letter doesn't suspend PEMDAS.



BIG IDEA 3

Watch the exponent's reach

1 $3y^2$ at $y = 2 \rightarrow 3(2^2) = 3(4) = 12$

2 $(3y)^2$ at $y = 2 \rightarrow (6)^2 = 36$

REMEMBER

In $3y^2$, only the y is squared.



BIG IDEA 4

Writing an expression

- 1 '\$12 to join, then \$8 an hour' → $12 + 8h$
- 2 The one-time fee is its own term; only the rate multiplies h .

REMEMBER

Don't fold the fee into the rate.



SPOT THE SLIP!

Turn & talk

Something went wrong here...

THE PROBLEM

Evaluate $10 + 2a$ when $a = 5$.

WHAT A STUDENT DID

Answered 60 — added $10 + 2$ first.

YOUR MISSION

What went wrong? What's the right answer?



WATCH MR DJ SOLVE

Copy the steps

Evaluate $10 + 2a$ when $a = 5$.

1 $10 + 2(5) = 10 + 10 = 20.$

Answer: 20



Pick your pepper!



☛ MILD

Evaluate $4n$ when $n = 6$.

#1 on your practice sheet



☛☛ MEDIUM

Evaluate $3y^2$ when $y = 2$.
Show each step.

#3 on your practice sheet



☛☛☛ SPICY

A gym charges a \$12 joining fee plus \$8 per hour. Write an expression for the cost of h hours, then find the cost of 3 hours.

#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



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 “Variables, Expressions, and Equations Explained | Algebra for Beginners” on YouTube @MathWithMrDJ

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

