# OA.1 Order of Operations

**Goal:** I will be able to use order of operations to evaluate (solve) expressions.

## Vocab

expressions: a number sentence that contains numbers, operation signs, and sometimes variables $(\times, \div, +, -)$

↑
letter for unknown number

DOES **NOT** have an $=$ (equal sign)!

# How to Solve Expressions Using Order of Operations

## P E M$_{together}$D A$_{together}$S

**P**
→ Parentheses
→ Done 1$^{st}$

{ [ ( parenthese ) ] }

→ Brackets
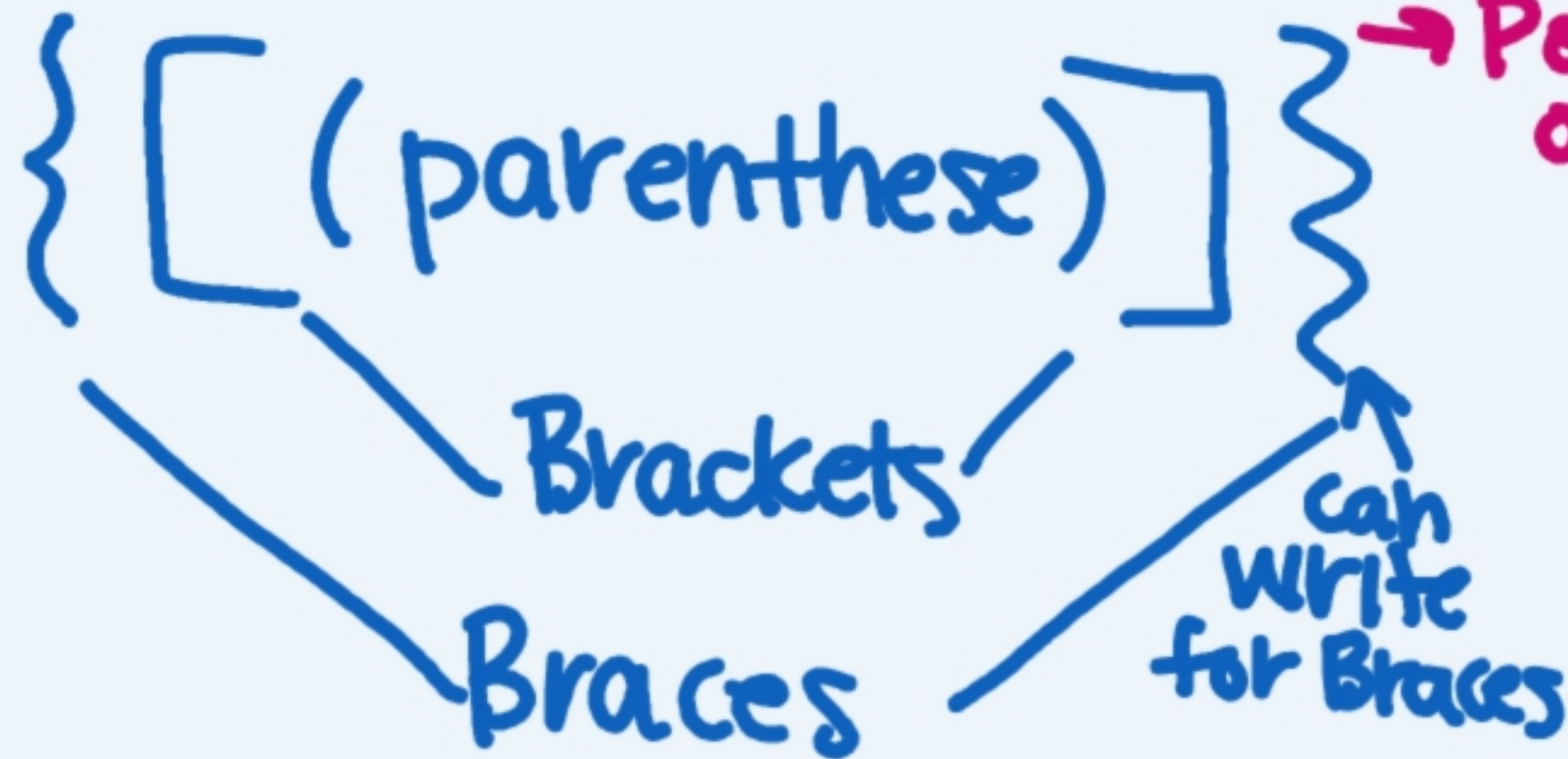→ Braces
Can write for Braces
→ Solve inside out

**E**
→ Exponent
→ Sometimes done BEFORE Parentheses
→ Powers of 10

**M** together **D**
→ Multiply and Divide
→ Solve reading left to right
→ Whichever comes 1$^{st}$ NOT which problem you like better

**A** together **S**
→ Add and subtract
→ Solve reading left to right
→ Whichever comes 1$^{st}$ NOT my favorite or easiest problem to solve

# Example 1

$$[7 + (5 - 2)] \times 3$$

$$[7 + 3] \times 3$$

$$10 \times 3$$

$$30$$

Things to Know and Do

$$\{ 3^{rd} [ 2^{nd} ( 1^{st} ) ] \}$$

work down ↓ page

show ALL work

Solve **ONE** problem at a time

recopy problem after solving each step

**DON'T WRITE =**

# Example 2

$$3 + 5(6 \times 10^2) \div 5 + 1$$

$10 \times 10$

$$3 + 5(6 \times 100) \div 5 + 1$$

a number smashed with a grouping symbol or variable means MULTIPY

$$3 + 5 \times 600 \div 5 + 1$$

$$3 + 3000 \div 5 + 1$$

$$3 + 600 + 1$$

$$603 + 1$$

$$604$$

# Does Order of Operations Matter?

$$20 + 2 \times 2 - 6 \div 2$$

Solve left to right ONLY

$20 + 2 \times 2 - 6 \div 2$

$22 \times 2 - 6 \div 2$

$44 - 6 \div 2$

$38 \div 2$

$19$ ✗

Use order of Op to solve

$20 + 2 \times 2 - 6 \div 2$

$20 + 4 - 6 \div 2$

$20 + 4 - 3$

$24 - 3$

$21$ ✓