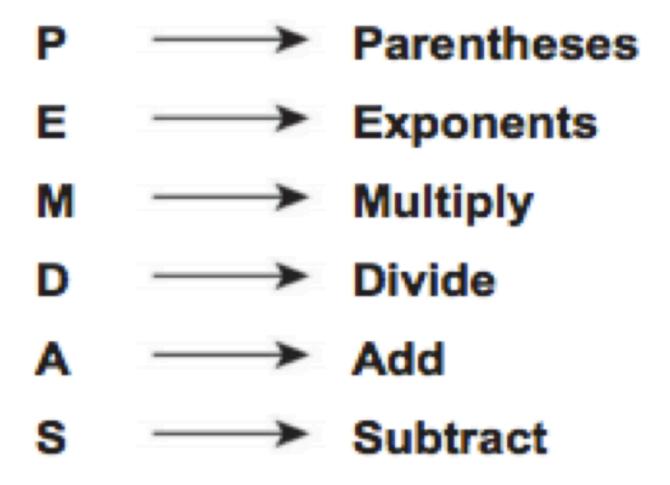The six letters form the "word" **PEMDAS**, pronounced "Pem-das". "Pem" rhymes with "Tim", and "das" sounds like "does."

Another way to recall the order of operation is in a sentence.

"Please Excuse My Dear Aunt Sally."

You can come up with your own sentence using the first letters of the operations, too.

P ⟶ **Parentheses**

E ⟶ **Exponents**

M ⟶ **Multiply**

D ⟶ **Divide**

A ⟶ **Add**

S ⟶ **Subtract**

A mathematical phrase that includes only numbers and operations is called a *numerical expression*.

$9 + 8 \times 3 \div 6$ is a numerical expression.

When you evaluate a numerical expression, you find its value.

You can use the order of operations to evaluate a numerical expression.

<u>Order of operations:</u>

1. Do all operations within *parentheses*.
2. Find the values of numbers with *exponents*.
3. *Multiply* and *divide* in order from left to right.
4. *Add* and *subtract* in order from left to right.

Evaluate the expression.

$60 \div (7 + 3) + 3^2$

$60 \div 10 + 3^2$	Do all operations within parentheses.
$60 \div 10 + 9$	Find the values of numbers with exponents.
$6 + 9$	Multiply and divide in order from left to right.
15	Add and subtract in order from left to right.

Simplify each numerical expression.

1. $7 \times (12 + 8) - 6$

   $7 \times \underline{\hspace{2cm}} - 6$

   $\underline{\hspace{2cm}} - 6$

   $\underline{\hspace{3cm}}$

2. $10 \times (12 + 34) + 3$

   $10 \times \underline{\hspace{2cm}} + 3$

   $\underline{\hspace{2cm}} + 3$

   $\underline{\hspace{3cm}}$

3. $10 + (6 \times 5) - 7$

   $10 + \underline{\hspace{2cm}} - 7$

   $\underline{\hspace{2cm}} - 7$

   $\underline{\hspace{3cm}}$

4. $2^3 + (10 - 4)$

   $\underline{\hspace{3cm}}$

5. $7 + 3 \times (8 + 5)$

   $\underline{\hspace{3cm}}$

6. $36 \div 4 + 11 \times 8$

   $\underline{\hspace{3cm}}$

7. $5^2 - (2 \times 8) + 9$

   $\underline{\hspace{3cm}}$

8. $3 \times (12 \div 4) - 2^2$

   $\underline{\hspace{3cm}}$

9. $(3^3 + 10) - 2$

   $\underline{\hspace{3cm}}$

Solve.

10. Write and evaluate your own numerical expression. Use parentheses, exponents, and at least two operations.

   $\underline{\hspace{12cm}}$

Fill in the steps in each simplification.

1. $4 + (9 \div 3)^2 \times 5 - 1$

   P: $\underline{\hspace{4cm}}$

   E: $\underline{\hspace{4cm}}$

   M: $\underline{\hspace{4cm}}$

   D: $\underline{\hspace{4cm}}$

   A: $\underline{\hspace{4cm}}$

   S: $\underline{\hspace{4cm}}$

2. $(3 \times 2) + 5^2 - 8 \div 2$

   P: $\underline{\hspace{4cm}}$

   E: $\underline{\hspace{4cm}}$

   M: $\underline{\hspace{4cm}}$

   D: $\underline{\hspace{4cm}}$

   A: $\underline{\hspace{4cm}}$

   S: $\underline{\hspace{4cm}}$

Simplify.

3. $12 \times 4 \div 2 + (7 - 5)^4$

   $\underline{\hspace{6cm}}$

4. $1 + 2^3 - (4 \times 5) \div 10$

   $\underline{\hspace{6cm}}$