How Order of Operations Works

Which part of a problem to do first.

1. The order

1 Parentheses

Work out anything inside ( ) first.

2 Exponents

Then powers, such as 4^2.

3 Multiply and Divide

Left to right, whichever comes first.

4 Add and Subtract

Left to right, whichever comes first.

Many people remember the order with **PEMDAS**: Parentheses, Exponents, Multiply, Divide, Add, Subtract.

2. One problem, one step at a time

$4 + 3 \times (10 - 6)^2 \div 8$	
$= 4 + 3 \times 4^2 \div 8$	Parentheses first: $10 - 6 = 4$
$= 4 + 3 \times 16 \div 8$	Exponent next: $4^2 = 16$
$= 4 + 48 \div 8$	Multiply (it is on the left): $3 \times 16 = 48$
$= 4 + 6$	Divide: $48 \div 8 = 6$
$= 10$	Add last: $4 + 6 = 10$

3. Three mistakes to watch for

Adding before multiplying

$2 + 3 \times 4$

is 14, not 20.

Multiply first: $3 \times 4 = 12$, then $2 + 12$.

Multiplying before dividing

$24 \div 4 \times 2$

is 12, not 3.

They are equal partners. Go left to right: $24 \div 4 = 6$, then 6×2.

Adding before subtracting

$12 - 4 + 3$

is 11, not 5.

They are equal partners too. Go left to right: $12 - 4 = 8$, then $8 + 3$.

4. Try it

$5 + 2 \times 6 =$ _____

$(5 + 2) \times 6 =$ _____

$20 - 12 \div 4 =$ _____

$3^2 + 4 \times 2 =$ _____

Answers: 17, 42, 17, 17