

GEMS

Order of Operations Guide

1. Grouping

Groupings – indicated using (parentheses) – should be worked first.

$$\begin{aligned}(2 + 3) \times 5 \\ (5) \times 5 \\ 25\end{aligned}$$

2. Exponents

Exponents are next. Exponents can be shown as x^2 , but \sqrt{x} is also an exponent. \sqrt{x} can be written as $x^{1/2}$.

$$\begin{aligned}4 \times 2^2 \\ 4 \times 4 \\ 16\end{aligned}$$

3. Multiplication

Multiplication is next. Multiplication and division are the same operation, so work all multiplication and division from left to right in your equation.

$$\begin{aligned}6 \div 2 \times 5 \\ 3 \times 5 \\ 15\end{aligned}$$

It doesn't matter what format the multiplication or division use; they are still worked from left to right.

$$\begin{aligned}7 + 4(5) \div 10 * 4 \\ 7 + 20 \div 10 * 4 \\ 7 + 2 * 4 \\ 7 + 8 \\ 15\end{aligned}$$

Division can be written as multiplication of a fraction.

$$\begin{aligned}10 / 4 \\ 10 \times \frac{1}{4}\end{aligned}$$

4. Subtraction

Subtraction is next. Subtraction and addition are the same operation, so work all subtraction and division from left to right in your equation.

$$\begin{aligned}2 + 5 - 4 + 7 \\ 7 - 4 + 7 \\ 3 + 7 \\ 10\end{aligned}$$

Subtraction can be written as addition of a negative number.

$$\begin{aligned}10 - 3 \\ 10 + (-3) \\ 7\end{aligned}$$

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