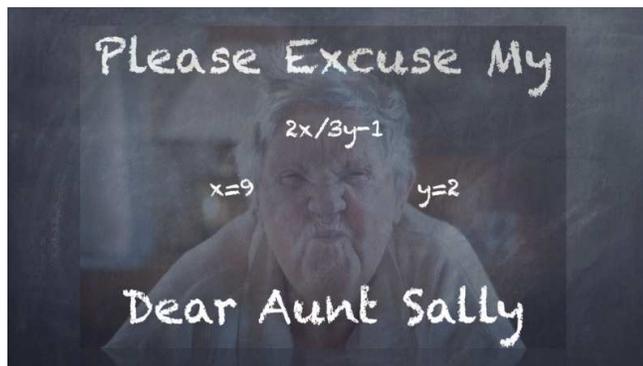# Worksheet: Order of operations

The following problem produced quite a stir a couple of years ago:

Problem: What is 2x/3y-1 if x=9 and y=2?


```
x=9;  y=2;  2x/3y−1
x=9;  y=2;  (2x)/(3y)−1        (* PEMDAS *)
x=9;  y=2;  (2x/3)y−1          (* PEDMAS *)
```

Problem: What is $x/3x$?

```
Simplify[ x/3x  ]
```

Problem: What is $x/x/x$?

Problem: What is 2/100/2?

Problem: What is $3^{3^{3}}$?

```
3^3^3
```

Worksheet: Top 5 formulas?

Problem: In school geometry, there is no argument, the Pythagorean theorem is the most important result.

Which result in algebra is the most important one? There are some suggestions on the back, but maybe don't peak yet:

Here are some examples

- FOIL: first- outer- inner-last
- Log rule $\log(xy) = \log(x) + \log(y)$.
- Exponential rule $x^y = e^{y \log(x)}$
- The quadratic solution formula
- Add to y, go high, Add to x, go west.
- $(x - 1)(x + 1) = x^2 - 1$
- The associativity rule in multiplication
- The associativity rule in addition
- The distributivity rule
- $\sin^2(x) + \cos^2(x) = 1$
- $\sqrt{x}^2 = x$ but $\sqrt{x^2}$ is not x.
- We can add a constant to both sides of an equation
- When multiplying an inequality, the signs change
- $\sqrt{ab} = \sqrt{a}\sqrt{b}$
- $1/(1/x) = x$
- $1^x = 1$ for all x
- $0 * x = 0$ for all x
- $1 * x = x$ for all x