Why you shouldn't teach BODMAS

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Outline

- What is BODMAS?
- Why you shouldn't teach BODMAS
  1. Often it gives the wrong answer
  2. Often it gives no answer
  3. Hard to determine when it does work
  4. Rules vs. understanding
- Suggestions
- Pedagogic implications

What is BODMAS?

BODMAS is an acronym which (badly) summarises the conventions for deciding which order to do calculations in a mathematical expression.

Example: $7 + a \times (b - 4)$

- B - Brackets
- O - Of or Order
- D - Division
- M - Multiplication
- A - Addition
- S - Subtraction

Why you shouldn't teach BODMAS

0. What does "Of" or "Order" even mean??

Why you shouldn't teach BODMAS

1. Often BODMAS gives the wrong answer

$$10 - 5 + 2$$

$$\frac{30 + 20}{10}$$

Why you shouldn't teach BODMAS

1. Often BODMAS gives the wrong answer
2. Often BODMAS gives no answer

$$10 - 5 - 2 \qquad 10 \div 5 \div 2$$

$$-2^2 \qquad 2^{3^2}$$

Why you shouldn't teach BODMAS

1. Often BODMAS gives the wrong answer
2. Often BODMAS gives no answer
3. Hard to determine when it does work
4. Rules vs. understanding

Suggestions

- Illustrate the need for each convention.
- Build-up the conventions little-by-little.
- Teach it along with other ideas.
- Show students the errors in BODMAS.

Pedagogic Implications

- Be critical of what you teach
  - It might be wrong
  - It might be improvable
  - Be critical of how you were taught
- Keep things motivated
  - Explain the problem before the solution
  - Avoid jargon when *introducing* a new idea
- Deeply understand your subject
  - Could there be different conventions?
  - Know the inconsistencies in your subject.
  - Know what ought to be understood and what has to be taken for granted.