

ELEMENTARY ALGEBRA: TOP 10

This is an attempt to isolate a top ten ingredients of **elementary algebra**. While elementary algebra is secondary school material, it is essential for college.

1. USING VARIABLES

X marks the spot

2. SEPARATE VARIABLES

Isolate the unknown

3. ORDER OF OPERATION

PEMDAS

4. MULTIPLY OUT

FOIL

5. FACTOR EXPRESSIONS

Divide and conquer

6. ADDING FRACTIONS

Common denominator

7. POWERS OF POWERS

$$(a^b)^c = a^{bc}$$

8. MULTIPLY POWERS

$$a^b a^c = a^{b+c}$$

9. LINEAR EQUATIONS

$$mx + b = c$$

10. QUADRATIC EQUATIONS

$$\frac{-b \pm \sqrt{b^2 - 4c}}{2}$$

11. ABOUT THIS DOCUMENT

11.1. Elementary algebra assumes basic arithmetic skills. One should know that integers, fractions, real numbers are and know notations for addition, multiplication or exponentiation. There will be an **intermediate algebra** part which is characterized to involve functions like the exponential function or logarithm function or involving several variables and also having a graphical component. Finally, an **advanced algebra** part focusses also on algebraic structures like symmetries, group or ring operations. Advanced algebra parts are less taught in secondary school as other parts of mathematics like discrete mathematics, elementary probability and statistics or introduction to computer science.

DEPARTMENT OF MATHEMATICS, HARVARD UNIVERSITY, CAMBRIDGE, MA, 02138