

INTERMEDIATE ALGEBRA: TOP 10

This is an attempt to isolate a top ten ingredients of **intermediate algebra**. Also intermediate algebra is primarily a secondary school material but is partly covered also in early college classes. We do not want here to go into geometry nor into calculus type topics.

1. FUNCTIONS

Algebra deals with quantities which are named with variables like x, y . Relating variables like $y = x^2$ naturally leads to functions $f(x) = x^2$. We might ask why we want to be as picky and

2. GRAPHING

But we like to distinguish the rule which assigns to a variable x its square and the graph of the function which are all pairs (x, x^2) drawn in the plane.

3. INVERSES

When solving equations we often encounter the problem of having to invert a function.

4. ROOTS

5. EXPONENTIAL

6. LOGARITHM

7. LINEAR SYSTEMS

8. BINOMIAL

9. RATIONAL FUNCTIONS

10. GEOMETRIC SUM

11. ABOUT THIS DOCUMENT

11.1. Intermediate algebra builds up on elementary algebra. We start to look at 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.

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