Concepts & Computation
in Pre-Algebra & Early in Algebra I

Abstract

Think composite, multiple, factor, linear, reciprocal, opposite, FOIL, solve, simplify, domain, graph.
Consider the focus of graphing in the 21st century.
Play "A Game for Two Players."
Use Term Tiles for "digitally concrete" computation. page pdf

Hi!

I wrote this talk to encourage the early use of the words and meaning of identity, opposite, and reciprocal functions in the teaching of algebra and prealgebra and to provide the support material to promote student success and faculty satisfaction on a job well done.

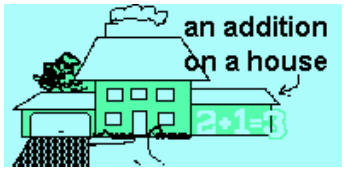
-- Agnes (A^2) Azzolino

function name	symbol	meaning/performance/action
identity	x	no change, no sign change, no size change,

		exactly the same as the input, identically the same
opposite	-x	sign change, no size change, the additive inverse
reciprocal	1/x, x^{-1}	no sign change, size change, the multiplicative inverse -- if x>1, the reciprocal is smaller than x and positive -- if x=1, the reciprocal is x, 1, still positive -- if 0-- if x=0, the reciprocal infinite in size, is undefined -- if -1-- if x=-1, the reciprocal is x, -1, still negative -- if x<-1, the reciprocal is smaller in magnitude and negative

In short:

identity	no change
opposite	sign change
reciprocal	size change



MATH SPOKEN HERE!
- a richly illustrated arithmetic, algebra, precalc, and calc dictionary & reference site

"Think composite, multiple, factor, linear, reciprocal, opposite, FOIL, solve, simplify, domain, graph," prime.

A Game for Two Players

Play "A Game for Two Players."

A Game for Two Players

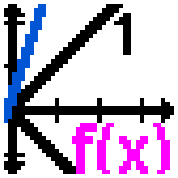
Lab 1 - Sheet 1 - Select, Copy, Paste &
Sheet 3 - A Game for Two Players
Lab 2 - Term Tiles & hyrogliphics

Term Tiles & Tokens

The Visual / Auditory / Symbolic / Kinesthetic Approach to Algebra

"Use Term Tiles for 'digitally concrete' computation."

- represent
- simplify
- multiply
- solve
- Term Tiles Handout



Exploring Functions
through the Use of Manipulatives

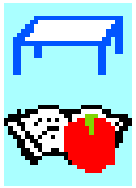
- The reciprocal functions is the best way to teach domain and range.
- The best way to do that is with Exploring Functions.
- For paper and pencil graphing, polka-dotting a curve ensures accuracy.
- Exploring Functions Handout AMTNJ.2024.gsp

Asides

Use the [[x]] to teach g(x) = af(bx-c)+d in precalc.

Wipebook Contest
https://wipebook.com/30iba4

Make your own QR code for free at
https://www.qrcode-monkey.com



Statistics resource.

Writing-to-Learn, "Critical Thinking Assignments"

Writing-to-Learn, Projects

Precalc & Calc material organized for students, and also organized by my department's course outline.

Anyone who writes tests involving computation

Comments on Inverses

The identity, opposite, and reciprocal functions are their own inverses.

It is useful to keep the phrases for inverses as similar as possible.

function name	symbol	its inverse function
identity	x	the identity function is its own inverse
opposite	-x	the opposite function is its own inverse
reciprocal	$1/x$, x^{-1}	the reciprocal function is its own inverse
squaring	x^2	$\sqrt{x}$, the square root function A square root is a number. Square root of x means the number whose square is x.
exponentiate, raise to a power	b^x	$\log_b(x)$, the log, base b, of x A log is an exponent. Log, base b, of x means the exponent to which b must be raised to get x.
sine function	sin(x)	$\sin^{-1}(x)$, or arcsin(x), the arcsine of x An arcsine is an angle. Arcsine of x means the angle whose sine is x.

Closing Remarks & Requests

Play is a valuable way to learn.

Manipulatives are valuable tools for teaching and thinking and learning.

Think and use the words, not just the symbol:

identity	no change
opposite	sign change
reciprocal	size change