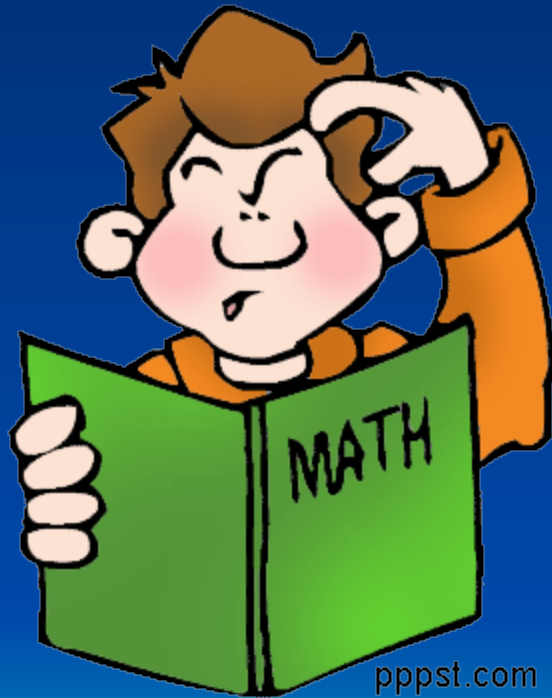


# American Sign Language + Mathematics

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# The year of 1826 – ASL in numbers.....



# Introduction myself....

- My background
- Why am I interested in this topic?



# Summary on my thesis

- “A Study of Perceptions of Mathematics Signs: Implications for Teaching”
  - May 2005 from RIT/NTID
- Little research on Mathematics signs
- Few mathematics teachers/interpreters have math degrees, certifications and experience with sign language
- Errors in signing mathematics terms
- Examine perceptions of professionals and students in order to learn more about mathematics signs
- Help future researchers, teachers, interpreters and students to explore the best way to sign in mathematics classes



# Continue with my thesis

- Invented signs
- Situations for interpreters
- Communication issues in mathematics classes
- Websites/Resources for Mathematics signs
- Recommendations



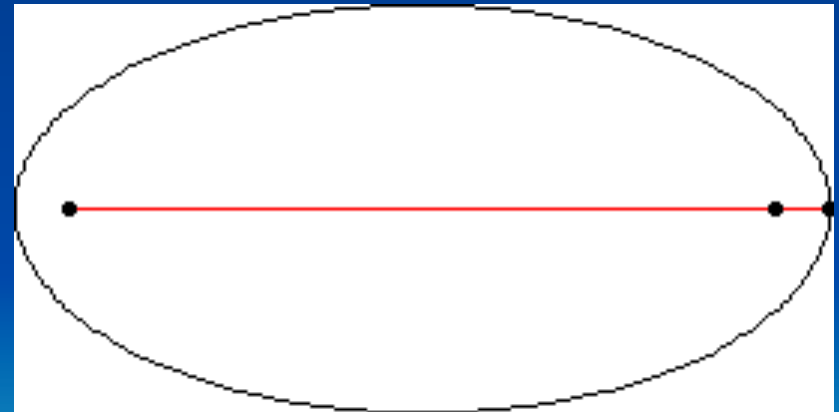
# Continue...

- 13 interviews (5 college professors, 5 interpreters and 3 students)
- Online Survey
- Results:
  - Initialization (between Deaf and hearing participants)
  - 90% wrong signs from interpreters
    - For example: Right Angle, Radius, Acute Angle, Odd/Even
  - “Advanced” terms vs. “basic” terms
    - For example: Pythagorean Theorem



# Discussion...

- Degree and certification in mathematics
- Fingerspelling and SEE
- Interpreters: technical signs



# So, that's why you all are here....

- Math class
  - What to do with the term that you don't know how to sign?



# Before, During, and After class

- Before Class
  - Ask for a copy of math textbook and/or lesson plan- check problems (same as plays)
  - Meet with a math teacher to become a good relationship
  - Encourage to have visual aids in classroom (NOT FORCED!)
  - Ask students to use ASL, SEE, etc
- During Class
  - Not invented signs
  - Where to sit/stand while interpreting in math class
  - Sign backward?
  - Interpreting by a whiteboard
  - Touching papers/board interfere with a teacher
  - Interpreting everything while teacher's lecture?
- After Class
  - Make notes if you don't know signs
  - Ask Deaf people or Math teacher

# 2-D vs 3-D

- Index IX
  - Graph, square, triangle, line
- Palm B
  - 2 planes, sphere, cone, pyramid,

# Mathematics Signs: Number systems

- Natural numbers (counting)
- Whole numbers (WL numbers- meaning only 0 to etc, not included integers)
- Positive and Integers numbers
- Rational numbers (ratio numbers- fractions)
- Irrational numbers (IRR numbers- cannot in ratio IE:  $\pi$ ,  $-i$ )
- Real numbers (all number)
- Imaginary numbers ( $i$  number)
- Negative numbers
- 1 digit, 2 digits (person in BSL)



# Operations: Noun vs Verbs

- Verb (once)
  - Add
  - Subtract
  - Multiply
  - Divide
  
  - Same as Sit, Open the Window, Close the door
- Noun (repeat)
  - Addition
  - Subtraction
  - Multiplication
  - Division
  
  - Same as Chair, Window, Door



# But....

- Symbols:

- Plus
- Minus
- Times
- Divide by

- IE:

- $3 + 4 =$
- $6 - 3 =$

- To Answer

- Sum
- Difference
- Product
- Quotient

- IE: Heidi has two treats in her bowl. She eats one. How many treats are left?



# Basic Mathematics

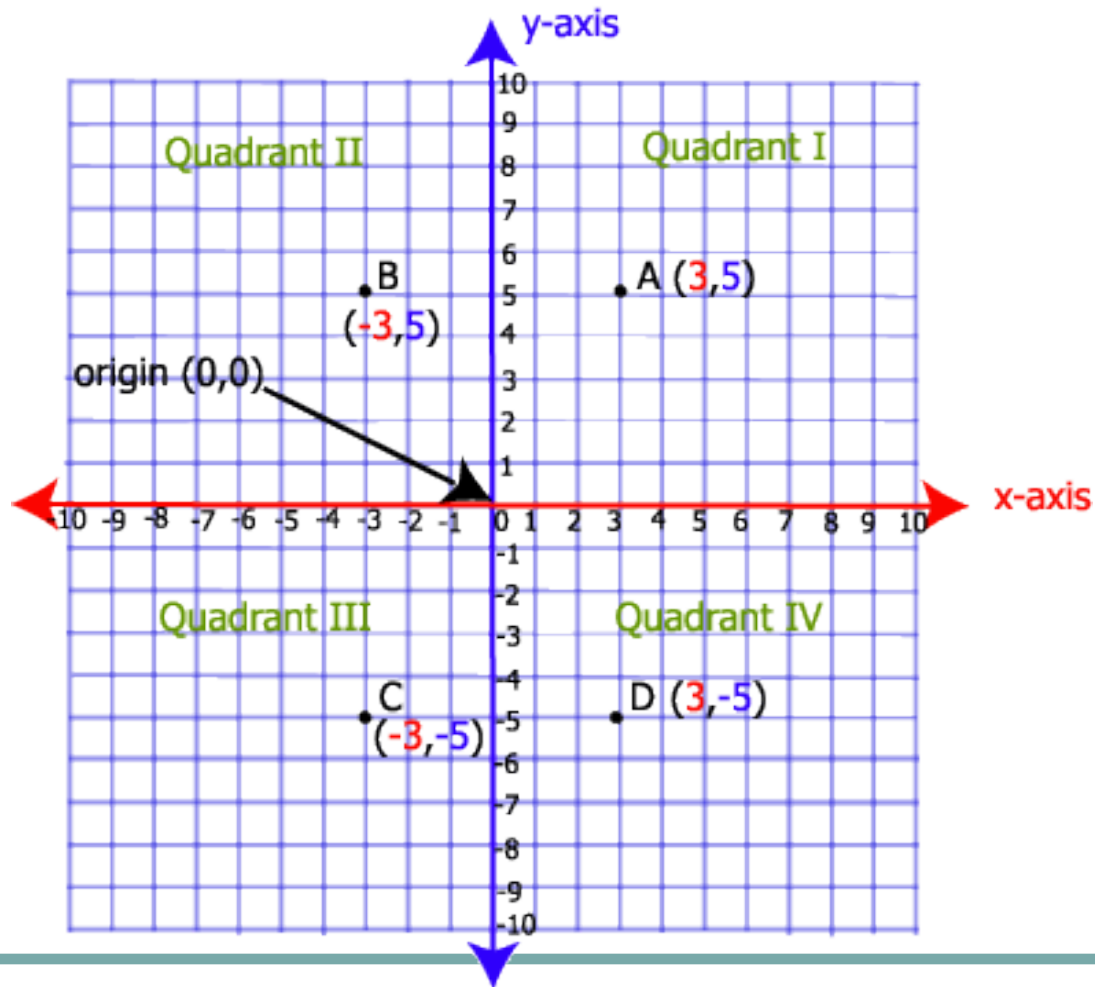
- Odd and Even
- Prime (Prime Number=PN)
- Composite (Composite number= CN)
- Divisibility (Divide can?)
- Multiplier (multiply can?)
- Equivalence (equal can?)
- Divide: Remainder
- Mean, Mode, Median
- Numerator
- Denominator
- Greater Common Factor (GCF)
- Least Common Multiply (LCM)
- Least Common Denominator (LCD)
- Greater than
- Less than
- Order of Operations (four list, figure out)
- Proportion
- Perimeter

# Direction...Algebra

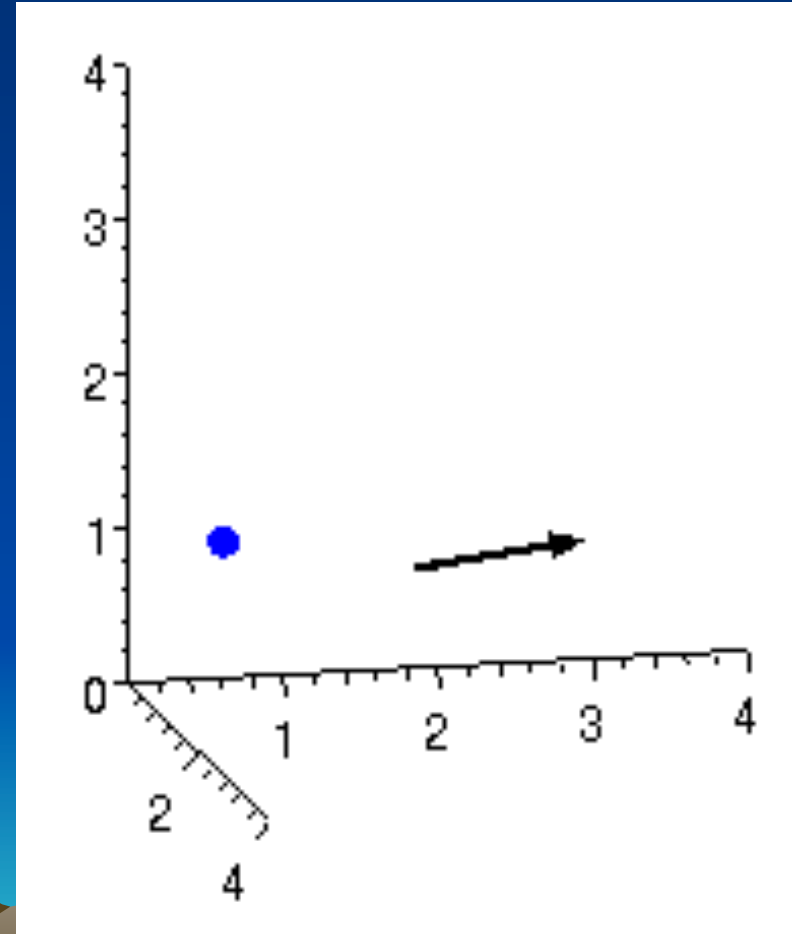
- Express (sentence)
- Simplify (elimination)
- Solve
- Rearrange
- Evaluate (replace)
- Factor
- Find (recorded)
- Round
- Estimate (feel)
- Convert (change)
- Translate
- Complete (recorded)
- Solution (answer)



# Quadrant I, II, III, IV

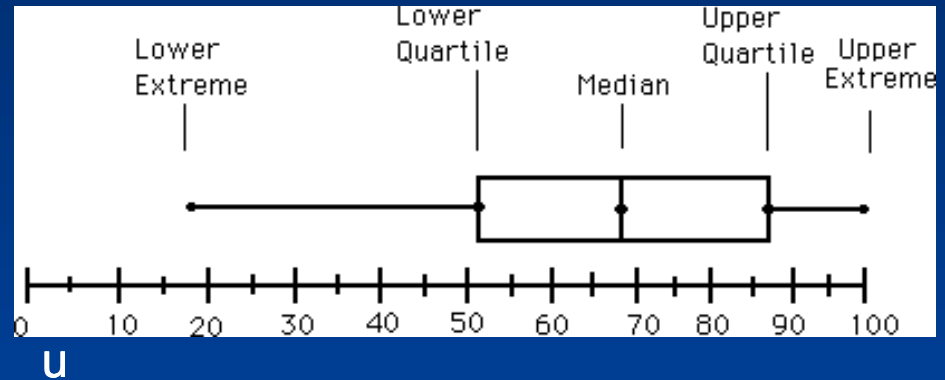


- $Ax + by + cz = D$

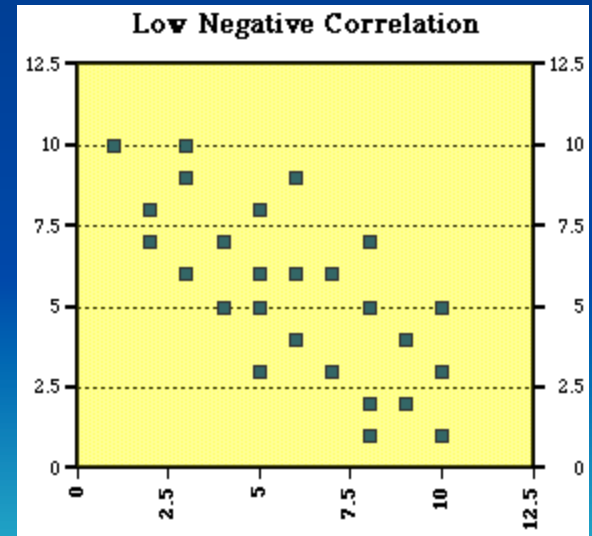


# Kinds of graph (Con't)

- T-Chart
- Table (x and y)
- Box and Whisker
- Stem and Leaf
- Scatter plots
- Bar graphs
- Circle graphs
- Number line



Stem	Leaf
3	8



# Geometry

- Point
- Endpoints
- Ray
- Line
- Line segments
- Parallel (be careful, absolute value)
- Intersect
- Perpendicular
- Skew (never meet)
- Plane
- Theory
- Hypothesis
- Diagonal
- Angle
- Acute Angle
- Obtuse Angle
- Right Angle
- Degree
- Vertex
- Circle
- Radius
- Diameter
- Chord vs Tangent
- Perimeter
- Compass
- Protractor
- Origin
- Height
- Base



# Calculus/Trigonometry

- Differentiation (diff)
- Differential (d)
- Differentiate (figure out d)
- Integral
- Limit (lim)
- Sine, Cosine, Tangent
- Period
- Amplitude
- Domain (x, )
- Range ( , y)
- Infinity
- Squared
- Square root
- Cubed
- Coefficient
- Cubed root



# Works Cited

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# Contact me?

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