MIRRORED MATH



Five Parallel Mathematics Lessons in American Sign Language and English

with

Steven Fuerst

and

Harv Schuldt

Click anywhere to go to Table of Contents

This project is a creation of
the COLLEGE OF ST. CATHERINE
in partnership
with SLICES, LLC;
RSA Region V ITP Award #H160A000008

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To go to any of these pages, you can click on their title or page number on this Table of Contents. Each page has a link that will bring you back to this page if you wish to use this for navigation. You can also click on the Red Arrows to go to the next or previous page. Finally, you can click on the Navigation Panel toolbar, located to the right of the Printer Icon at the top of the screen. Then, look for the *Bookmark* tab, instead of the *Thumbnails*. These bookmarks serve as links to guide you throughout the document.



Using this CD-ROM

Technical Stuff

Navigating through Acrobat Reader:



Each page has navigation links sending you on, or taking you back to the Table of Contents. On the Table of Contents page, you can click on the words of any of those pages, and it will take you there. You can also click on the BOOKMARK tabs (pictured and located in the upper left of your screen(Version 5.0) and you will see a series of navigation links. The red arrows take you to the previous and next pages.

Playing Movies:

The movies are connected to the Acrobat Reader File and are located in the Movies Folder on your CD. By clicking on the places indicated on the page, Acrobat Reader automatically starts the QuickTIme program to play the movie. If you have not installed QuickTime, see the *ReadMeFirst* file on the CD for links of where you can download this free software.

Some movies are formatted to play within the visible window, and not as a pop-up window. These movies are activated simply by clicking on the picture, can be stopped by clicking on another part of the page. You can also adjust the viewing size by utilizing the controls on the Menu bar to magnify the page. Change the magnification and use the scrollbars until the movie fits within the screen and plays at a scale that your computer can play fluidly. (*This method is the only current way that is compatible for Mac OS X users.*)



Once you start playing a movie, you can use the control bar at the bottom of the movie's window to move forward or backward in the movie, or to pause it. **To exit a movie before it is finished, press ESC located in the upper left part of your keyboard.**

Troubleshooting

When I click on the movies, they won't work?

Mac OS X Users: At time of production, Acrobat Reader is not fully functional and will not play movies in pop-up windows. (2x and Max.) Use the QuickTime option.

For other users: There are two possible problems and solutions. First, check to make sure that you have QuickTime 4 or better installed on your computer. See the *ReadMeFirst* file for information on how to do this. Second, make sure that you have Acrobat Reader 4 or higher installed. Acrobat Reader 3 will allow you to read this file, but will not play the movies correctly. The *ReadMeFirst* file has info on how to upgrade your version of Acrobat Reader.

When I play the movies in the small mode, it is fine; but in large modes, the movies are choppy and hard to read. Any possibilities?

The computer processor is not fast enough or your CD drive doesn't deliver the information fast enough. Either try the CD on a faster computer, or play the smaller versions of the movies.

The movies are too light or too dark.

Unfortunately, the settings of Mac and PC monitors are different. Movies play lighter on Macs and darker on PCs. You can adjust your own monitor if necessary from your control panel, but the movies were produced to try to be a compromise and work on both.

The **Max** *mode is no different than* **2x.**

This means your monitor is set to a resolution of 800 x 600. In order to take advantage of playing full screen, go to your control panels and set your resolution to 1024 x 768 or greater.

Strategies for Use

This project was produced with many different possibilities for use. What is listed here are simply suggestions for focusing on developing interpretation skills within mathematics settings.

1. View and analyze the parallel lessons.

- First, study the lesson plan to have an idea of what topics will be covered.
- Then, watch either the ASL or English lesson in its entirety. Make note of how specific math concepts are explained and conveyed.
- Then, watch the parallel lesson. Compare and contrast the language usage.

The lessons range from 8 - 20 minutes in length, so be sure to allot enough time to allow for viewing both in one sitting.

2. Practice interpretation from English to ASL.

- First, study the lesson plan. You may even want to print it out so that you will have it for a reference.
- Then, interpret the English version of the lesson. If desired, videotape this interpretation to provide a baseline.
- After this, watch the ASL version of the lesson. You can then compare Steven's use of ASL to the language used in this first interpretation.
- After this analysis, return to the English version and re-interpret it, attempting to incorporate new ideas taken from the ASL lesson. Videotape this again, so that you can compare with the baseline videotape and see what improvements were made.

3. Practice interpretation from ASL to English.

This may be more challenging due to the movement of the ASL instructor making it a more difficult source to work from.

- First, study the lesson plan. You may even want to print it out so that you will have it for a reference.
- Then, interpret the ASL version of the lesson. If desired, videotape this interpretation to provide a baseline.
- After this, listen to the English version of the lesson. You can then compare Harv's use of English to the language used in this first interpretation.
- After this analysis, return to the ASL version and re-interpret it, attempting to incorporate new ideas taken from the English lesson. Videotape this again, so that you can compare with the baseline videotape and see what improvements were made.

Click on picture to play the movie with - in the win - dow.

Click on 2 x to to play it in larger scale.

Click on M a x to play it full screen.

Click Q T to open in QuickTime program.

*See **Using this CD-ROM** for details.*

About Our Instructors

The movies on this page give some background about the instructors, and also allow a bit of an opportunity to familarize yourself with their signing/speaking styles before starting with the Math lessons. Be sure to "meet your instructors" before moving into the lessons.

Intro to Harv Schuldt

2x Max QT

This length of this intro is 1:16.

Intro to Steven Fuerst

2x Max QT

This length of this intro is 2:32.

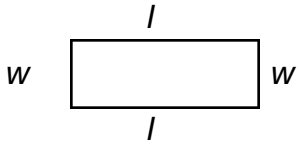
Lesson 1

Objective: *Students will use perimeter, area, and volume formulas.*

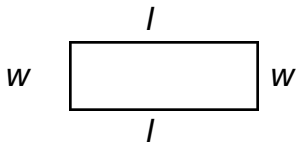
Procedure / Development of Learning Activity

1. Give a lecture about perimeter, area, and volume formulas. Draw three different formulas on the chalkboard. Ask students to identify all three formulas.

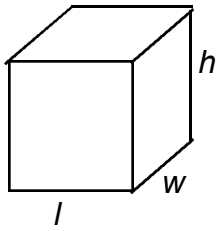
Perimeter: $p = 2l + 2w$



Area: $a = lw$

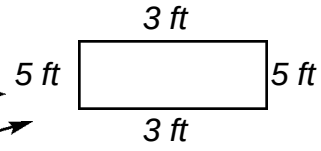


Volume: $v = lwh$



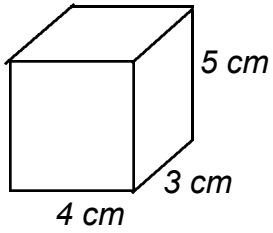
2. Given 3 different sample problems:

A) $p = 2l + 2w$ for $l = 3$ and $w = 5$



B) $a = lw$ for $l = 3$ and $w = 5$

C) $v = lwh$ for $l = 4$, $w = 3$, and $h = 5$



3. Discuss about real-life situations that utilize all three formulas.

Click here to go to Lesson One Movies

Click on picture to play the movie with - in the win - dow.

Click on 2 x to to play it in larger scale.

Click on M a x to play it full screen.

Click Q T to open in QuickTime program.

*See **Using this CD-ROM** for details.*

Lesson 1

Objective: *Students will use perimeter, area, and volume formulas.*

Click here to see Lesson Plan

Harv in English

2x Max QT

This length of this lesson is 15:16.

Steve in ASL

2x Max QT

This length of this lesson is 8:27

Lesson 2

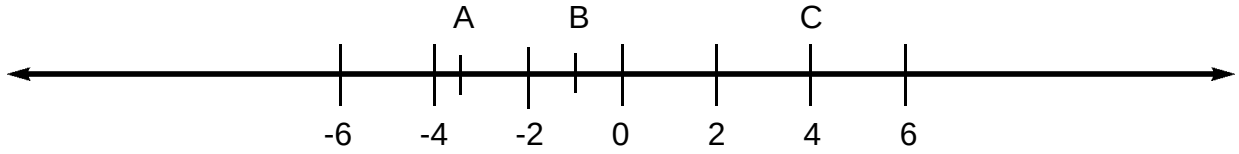
Objective: *Students will graph a point on a number line, given the coordinate of the point, use real numbers to describe real-life situations, and compare real numbers.*

Procedure / Development of Learning Activity:

1. Give a brief lecture about real numbers such as natural and whole numbers and integers.

Natural = 1,2,3..., Whole = 0,1,2,..., Integers = ...-2,-1,0,-1,....

2. Given the coordinates of A,B, and C on the graph. The students will tell what number is the coordinate of these letters.



3. Given several real-life situations to the students, have them write the appropriate algebraic expressions.

- 25 degrees above zero
- a 5 yard loss in football
- withdrawal of $250 from a checking account
- a gain of 1-1/2 on the stock market

Click here to go to Lesson Two Movies

4. Give a better concept of how to identify > (*greater than)* or < (*less than)* by using the chalkboard.

Examples: 1) 3 __ -2 2) -2 __ 3 3) 0 __ -4 4) -5 __ -3 5) -2 __ -1 6) 5 __ -6 Bonus) -1000 __ 0

Click on picture to play the movie with - in the win - dow.

Click on 2 x to to play it in larger scale.

Click on M a x to play it full screen.

Click Q T to open in QuickTime program.

*See **Using this CD-ROM** for details.*

Lesson 2

Objective: *Students will graph a point on a number line, given the coordinate of the point, use real numbers to describe real-life situations, and compare real numbers.*

Click here to see Lesson Plan

Harv in English

2x Max QT

This length of this lesson is 10:13

Steve in ASL

2x Max QT

This length of this lesson is 10:42

Lesson 3

Objective: *Students will identify the representations of numbers that are in the word problem and translate from English to Algebra.*

Procedure / Development of Learning Activity:

1. Given four word problems on the chalkboard, the teacher will demonstrate to the students how to find the representations in each word problem.

A) The larger of two numbers is twice the smaller. Write representations of the two numbers.

B) The price of a book is $3 less than twice the price of a tape.

C) The first side of a triangle is 3 times as long as a second side. The third side is 5 cm shorter than the first side.

D) This year, the price of a movie ticket increased by one-fifth of the price last year.

2. Give hints such as *of*, *is*, and *and*, ask the students to see if they are able to catch all of these hints in each word problem. Can use this for group activity.

Click here to go to Lesson Three Movies

Click on picture to play the movie with - in the win - dow.

Click on 2 x to to play it in larger scale.

Click on M a x to play it full screen.

Click Q T to open in QuickTime program.

*See **Using this CD-ROM** for details.*

Lesson 3

Objective: *Students will identify the representations of numbers that are in the word problem and translate from English to Algebra.*

Click here to see Lesson Plan

Harv in English

2x Max QT

This length of this lesson is 13:14.

Steve in ASL

2x Max QT

This length of this lesson is 13:18.

Click on picture to play the movie with - in the win - dow.

Click on 2 x to to play it in larger scale.

Click on M a x to play it full screen.

Click Q T to open in QuickTime program.

*See **Using this CD-ROM** for details.*

Lesson 4

Objective: *Students will multiply rational expressions.*

Procedure/Development of Learning Activity:

1. Demonstrate to the students how to multiply rational expressions on the chalkboard. Factor both numerator and denominator first before using the Cancellation Property of Fractions.

2. Demonstrate using the FOIL method for factoring quadratic expressions.

3. Given sample problems on the chalkboard, the students will participate in helping and solving these problems.

A) $\frac{3}{10} * \frac{15x}{9}$ B) $\frac{6}{10x} * \frac{5}{2}$ C) $\frac{6x^4}{5y^7} * \frac{3y^5}{8x}$

D) $\frac{a+5}{6a+24} * \frac{4a+16}{a+3}$ E) $\frac{x^2+13x+42}{x^2-3x-40} * \frac{x-8}{x+6}$ F) $\frac{6a^2b^3}{10-2y} * \frac{y^2-y-20}{4ab^8}$

Click here to go to Lesson Four Movies

Click on picture to play the movie with - in the win - dow.

Click on $2x$ *to to play it in larger scale.*

Click on Max *to play it full screen.*

Click QT *to open in QuickTime program.*

See ***Using this CD-ROM*** *for details.*

Lesson 4

Objective: *Students will multiply rational expressions.*

Click here to see Lesson Plan

Harv in English

Steve in ASL

2x Max QT

This length of this lesson is 17:37.

2x Max QT

This length of this lesson is 15:17.

Click on picture to play the movie with - in the win - dow.

Click on 2 x to to play it in larger scale.

Click on M a x to play it full screen.

Click Q T to open in QuickTime program.

*See **Using this CD-ROM** for details.*

Lesson 5

Objective: *Students will perform operations which include square roots.*

Procedure / Development of Learning Activity:

1. Review basic square roots first before learn how to solve sums, differences, and products.

2. Tell the students about the rules of addition, subtraction, multiplication, and division. The radicals can be added or subtracted only if they both are the same identity. The radicals can be multiplied or divided no matter if they are the same or not.

3. Apply the Distributive Property to the radical expressions and simplify them.

4. Apply the FOIL method to the radical expressions and simplify them.

Examples:

1) $4\sqrt{12} - 2\sqrt{18} - 2\sqrt{27} + \sqrt{50}$ 2) $3x^2\sqrt{20x^3y} - x\sqrt{45x^5y} - x^3\sqrt{5xy}$ 3) $\sqrt{15} * \sqrt{10}$

4) $4\sqrt{3x^3} * 5\sqrt{15x^8}$ 5) $4\sqrt{5}(6\sqrt{5} - \sqrt{10} + 4\sqrt{7})$ 6) $(4\sqrt{3} + \sqrt{2})(2\sqrt{3} - 5\sqrt{2})$

Click here to go to Lesson Five Movies

Click on picture to play the movie with - in the win - dow.

Click on 2 x to to play it in larger scale.

Click on M a x to play it full screen.

Click Q T to open in QuickTime program.

*See **Using this CD-ROM** for details.*

Lesson 5

Objective: *Students will perform operations which include square roots.*

Click here to see Lesson Plan

Harv in English

2x Max QT

This length of this lesson is 15:16.

Steve in ASL

2x Max QT

This length of this lesson is 20:20

Roll the Credits

This project was a collaboration of many people's minds and talents and we wish to acknowledge them here.

Instructors/Language Models:

Steven Fuerst

Harv Schuldt

Filming/Computer Design:

Doug Bowen-Bailey

The Staff of the RSA Region V Interpreter Training Project:

Adminstrator:

Laurie Swabey

Project Managers:

Paula Gajewski

Richard Laurion

Adminstrative Assistant:

Darla Barrows

Special thanks to the participants of the Wisconsin Summer Institute and to Darla and Adam Barrows, for serving as students for Steve and Harv's simulated classrooms. Nothing worse than teaching to the wall, or worse, to only a camera.

To Exit--Mac: File > Quit. Windows: File > Exit.

RSA Region V Interpreter Training Project Fact Sheet

What is the Focus of this Project?

The goal of the Rehabilitation Services Administration (RSA) of the U.S. Department of Education is to make available, through ten regional grants, support for continuing education for interpreters who work with Deaf, hard of hearing and DeafBlind people. The ultimate goal is to increase the number of certified, qualified interpreters in post-secondary and employment related settings.

The goals of the training project for Region V include:

* Building an infrastructure in rural and urban areas across the region so that the long-term on-going need for skill maintenance and skill upgrading can be met in local areas. Some components of this include a comprehensive local and regional resource guide for interpreters and agencies, mentor development & training and independent study materials for interpreters.

* Continuing to provide a source of qualified interpreters who have graduated from the College of St. Catherine's four-year interpreting program, which includes specialized areas such as deaf-blind, health care and educational interpreting. These specialized courses will be offered in an intensive summer format to make them available to interpreters throughout the region. In addition, the goal has been set to see an increase of least 10% in the number of minority students/students from diverse communities completing the program.

* Co-Sponsoring 42 workshops per year in Region V, responding to previously identified needs as well as immediate and/or on-going needs, such as preparation for certification and developing interpreting skills for working with individuals who are DeafBlind or who have low vision needs. Co-Sponsoring may be in the form of information & referral, technical assistance, advertisement and/or a contribution to the presenter's fees/expenses.

Which states does Region V cover?

Region V includes the states of: Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin.

What type of support is available?

Technical Assistance: This includes assistance with any or all steps in planning and coordinating an event: locating presenters, assistance with timelines and detail work, registration coordination, fiscal coordination, advertising (including the development and mailing of flyers), printing of materials, evaluation development and summaries.

Financial: First consideration for financial support will be given to those projects that address the underserved populations identified by the Federal RSA or the Project Needs Assessment. This includes (but is not limited to) interpreters working in rural areas, interpreters working with individuals who are DeafBlind; distance-learning programs, mentoring and increasing the number of certified interpreters from diverse communities.

RID CEU sponsorship: Assistance with completing the necessary paperwork for approving CEU sponsorship for events throughout the region. As an approved sponsor, we can also be the identified sponsor of the CEUs for the event and take care of the necessary paperwork for application, documents for the event, and certificates of attendance.

Information and Referral: This includes providing contact information to individual interpreters for professional organizations, websites and other resources that may be helpful in general interpreting skill enhancement.

Any or all of the above mentioned kinds of support may be given to any project.

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RSA Region V Interpreter Training Project Fact Sheet (Continued)

How will awards for support, particularly financial support, be decided?

The non-financial support is readily available to anyone – simply give us a call or send us an email at least 2 weeks prior to your event, or 45 days prior if you are requesting CEU's, and ask us if the support you are looking for is within the scope of the Project and can be available for your event.

Organizations requesting financial support will be required to complete and submit to the Project office a simple application. Applications for funding will then be sent to at least three reviewers. They will be given a set of criteria, including the goals of the Project and region, and will make recommendations for whether or not this event should be approved for funding.

How much financial support is available?

Financial support will generally be in the form of Challenge Grants. We have funding available for 7 events per state, each of the five years of the project.

What are the criteria considered by the reviewers of the Challenge Grant applications?

The criteria includes:

* Which needs identified for this state and region does this event address? (The more needs addressed the better!)
* What partnering agencies and organizations are identified for working on this project? (Again, the more the better!) What kinds of contributions are being made by the partnering agencies, either financial or in-kind?
* Based on the budget submitted, does this look like a fiscally sound project? (Is it reasonably priced for attendees? Do the costs outlined seem appropriate for this size event?)

Can I apply at any time for financial or other support?

The applications for financial support will only be processed and reviewed on a monthly basis. Applications must be received in our office by the 5th of the month (or the closest business day to the 5th if it falls on a weekend) to be considered that month. Notification for awards will be given to applicants by the 30th of that month. Applications will not be accepted after an event has occurred.

What must I do once support is granted?

If the Project is co-sponsoring an event, by providing technical assistance, CEU sponsorship, and/or financial support, the grantee must provide the Project with a class roster, final budget, invoice and evaluation summary (if we are not doing the summary for the event) within 30 days of the events completion. The Project must be identified as a co-sponsor on all advertisements with the following wording:

This Workshop is Sponsored in Part by Region V ITP Award #H160A000008 at the College of St. Catherine in Partnership with SLICES, LLC

Who is staffing the Project?

Darla Barrows is the Administrative Assistant and can be reached Monday – Friday, 8:30 – 4:30 p.m. Richard Laurion and Paula Gajewski of SLICES, LLC share the position of Project Manager. Laurie Swabey, the Director of the Interpreting Program at the College of St. Catherine, is the Project Administrator.

How can I get more information?

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Minneapolis, MN 55454
651-690-7779 (V) 651-690-7869 (TTY)
Fax: 651-690-7849
E-mail: federalprojectinfo@stkate.edu
http://www.stkate.edu/project

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