

Interactive Student Notebooks

Chae Coan
Barton Junior High School
El Dorado, AR

Introduction

- Background
 - *B.S.E. in Secondary Mathematics from Arkansas State University, 1993*
 - *Arkansas licensure*
 - 7-12 Mathematics
 - 5-6 Endorsement
- Teaching experience
 - *23 years, spanning preschool through 12th grade*
 - Primary focus: 7th through 10th grades
- Honors
 - *Mathematical Association of America*
 - Arkansas Middle Level Mathematics Teacher of the Year, 2015
 - *Featured in Dr. Nicki Newton's video about Interactive Student Notebooks*

Discovering the Interactive Student Notebook

- Marshall's Pre-AP Chemistry ISN
 - *What a great way to organize everything!*
 - It's all taped and glued together so nothing gets lost!
 - *Could I do this for math?!?*
 - *What did you call this thing again?*
- I think this COULD be applied to a math class!
 - *I have just invented something NEW!*
 - Little did I know...
 - *Summer of research*
 - Pinterest
 - Teachers Pay Teachers

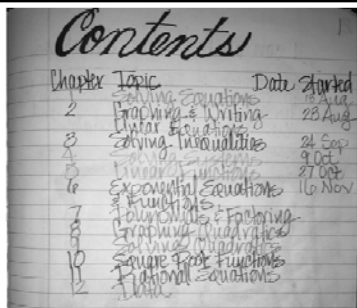


Setting Up the ISN

- Almost everything you find about the ISN suggests the Left Side/Right Side approach.
 - *Right Side is for teacher input (instruction)*
 - *Left Side is for student reflection (processing, analysis, and synthesis)*
- The Left Side/Right Side method did not work for me.
 - *In theory, it makes sense. In reality, I did not have enough class time for that much reflection.*

Setting Up the ISN (Cont.)

- Table of Contents
 - *Every page or only chapters?*
 - First I tried every page, the most common method.
 - The next year I changed to listing only the chapters.
 - Listing the title on both the Contents and the page itself seemed redundant to me.
 - Time is too valuable for this.
 - *Dates*
 - List the date each chapter is started.
- Page numbers
 - *Take time to have students number every page in the notebook.*

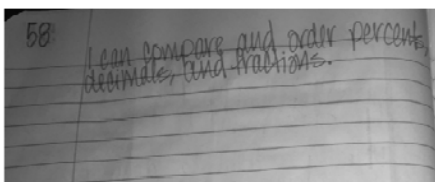


Pre-AP Algebra 1 Table of Contents

Each chapter is written in a different color. The "I can..." statements within each chapter are written in the same color as the chapter title.

What is an "I can..." statement?

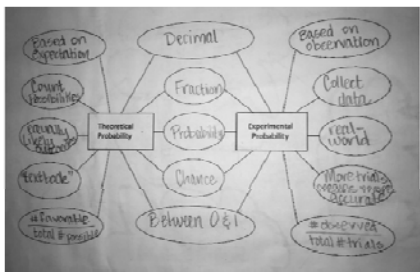
- An "I can..." statement is a learning objective written in student-friendly language.
 - *Standards and objectives are written for teachers and administrators, not students.*
 - *"I can..." statements tell students exactly what will be learned and they say it in language students can understand.*
- "I can..." statements are written at the top of every left side page in the ISN.
- Example:
 - *I can solve two-step equations.*



An "I can..." statement from chapter 6

To Grade or Not to Grade?

- Some teachers grade ISN's, others do not.
 - *Collect notebooks periodically and grade entire section*
 - *Grade selected activities as they are done.*
 - *Don't grade any of the notebook.*
- I grade selected foldables/worksheets as they are done.
 - *Sometimes I give completion/participation grades for foldables or notes.*
 - *Sometimes I take accuracy grades, like a small quiz.*

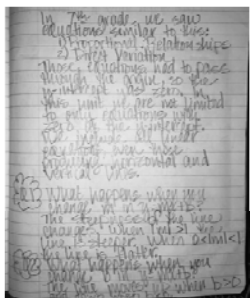


Quiz Grade in ISN

The instructions were to reflect on what you have learned about theoretical and experimental probability and create a mind map showing to compare and contrast the two.

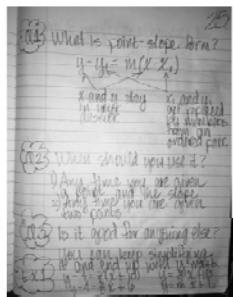
What Goes in the ISN?

- Foldables
 - *When I started I spent a small fortune on Teachers Pay Teachers.*
 - *Once I got the hang of it, I started making my own foldables.*
 - A few of my items are for sale on Teachers Pay Teachers. I hope to add to the selection next summer.
 - *I try to put foldables on left side pages only, but sometimes I end up with them on both sides.*
 - When taking notes directly in the notebook, I always use the right side because it is easier to write on paper that doesn't already have lumpy glue or staples on the other side.



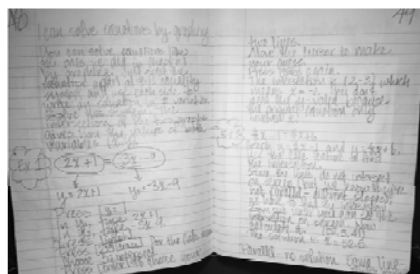
Reflection

Looking back and remembering last year, then reflecting on what was learned during this class period



Point-Slope Form Notes and Reflection

- Open Ended Questions
- What is it?
 - When should you use it?
 - Is it good for anything else?

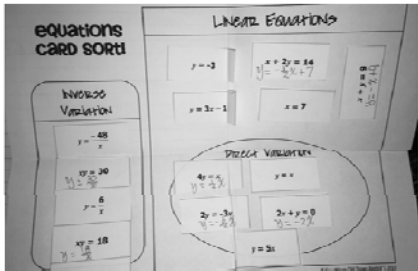


Notes



Frayer Model Vocabulary

Vocabulary templates show the word, definition, important facts/characteristics, examples, and non-examples.



equations card sort

INVERSE VARIATION

- $y = \frac{48}{x}$
- $xy = 30$
- $y = \frac{6}{x}$
- $xy = 18$

LINEAR EQUATIONS


- $y = -3$
- $x + 2y = 64$
- $y = 3x - 1$
- $x = 7$

SYSTEMS OF EQUATIONS

- $4x = 3y$
- $2y = -3x$
- $2x + y = 0$
- $y = 3x$

Sorting Activity

After learning about direct and inverse variation, this sorting activity was done during bell work as a quiz grade.



Wahre die Pythagoras

Area of square = side squared
 Area of square = side squared
 The two squares inside are congruent
 so they have the same area
 Area of square = side squared
 subtracted

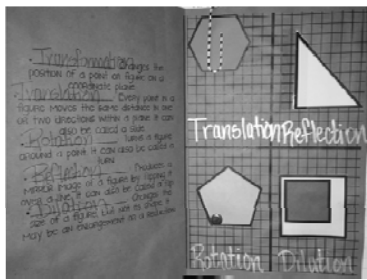
$$1^2 + 1^2 = 1^2 + 1^2 + 1^2 - 1^2$$

$$2 = 2 + 1 - 1$$

$$2 = 2$$

Proving the Pythagorean Theorem

A visual and geometric proof



Translation Every point in a figure moves the same distance in the same direction. This is also called a slide.

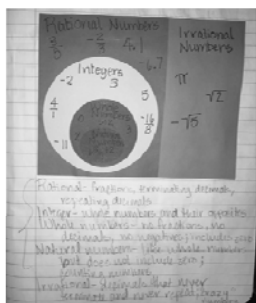
Reflection Every point in a figure is the same distance from a line. This is also called a flip.

Rotation Every point in a figure moves the same distance around a point. This is also called a turn.

Dilation Every point in a figure moves the same distance from a point. This is also called an enlargement or a reduction.

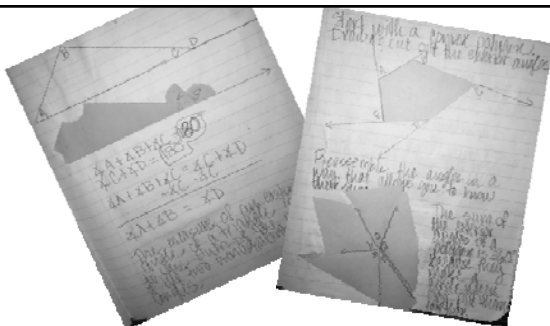
Transformations Foldable

The hexagon really slides by way of the paperclip. The triangle really flips by way of a piece of tape along the left side. The pentagon really spins by way of the brad. Sadly, no magic paper to make the square really enlarge.



Real Numbers

Each student received colored paper shapes, then assembled and labeled the graphic organizer. In past years many students had a hard time understanding some sets were completely enclosed by others. For example, integers are rational numbers, but rational numbers are not necessarily integers. By having the students actually stack and attach the different types of numbers, more of them understood this concept.



Angles of Polygons

The measure of an exterior angle of a triangle is equal to the sum of the two remote interior angles.
The sum of the exterior angles of a polygon is equal to 360 degrees.

Thank you for coming today!

- Contact Information
 - Chae Coan
 - ccoan@esd-15.org
- Visit my Teachers Pay Teachers store at www.teacherspayteachers.com/Store/Chae-Coan
- Some of my favorite TPT sellers

| | |
|----------------------|----------------------|
| ➢ Math Giraffe | ➢ Algebra4All |
| ➢ All Things Algebra | ➢ MissMathDork |
| ➢ 4mulaFun | ➢ Activities by Jill |
- Another great foldables resource
 - <http://bit.ly/1ysefRj>

Ordering Fraction, Percent,
Decimal

Equivalent Expressions

Cut & Paste Activity

By: Chae Coan

Cut apart the small squares that contain fractions, decimals, and percents.

Match the equivalent expressions.

Put the groups in order from least to greatest.

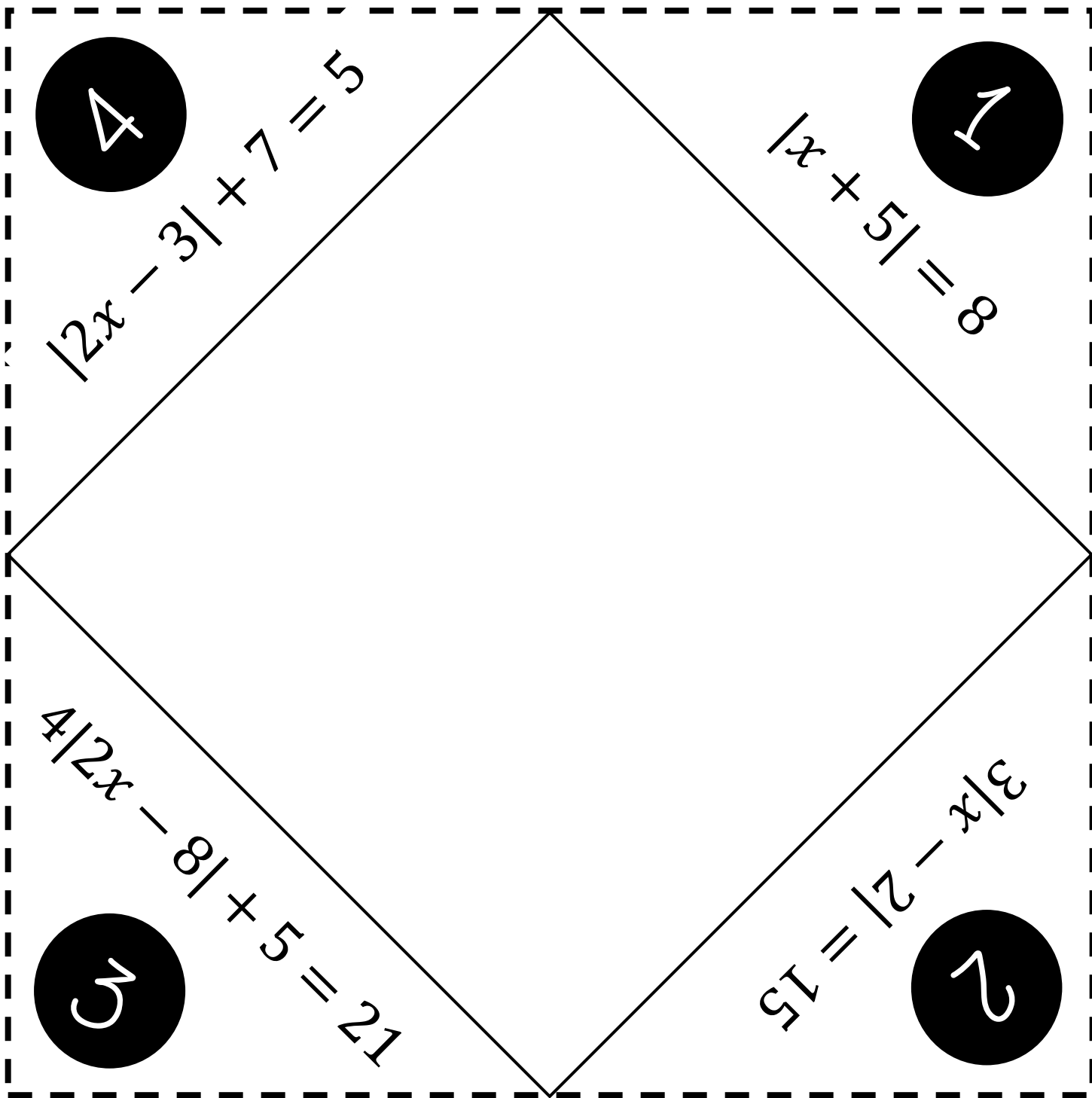
Glue onto the sheet in order.

The activity was designed to be printed on legal size paper. If you choose to print on letter size paper, be aware that the pieces will be quite small.

Thank you for purchasing this activity!

| | | | | | | | | | | | | | | |
|----------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Percent | | | | | | | | | | | | | | |
| Decimal | | | | | | | | | | | | | | |
| Fraction | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---------------|---------------|---------------|----------------|-----------------|---------------|-------|----------------|-----------------|------------------|-------------|-------------------|---------------|-------------|
| 75% | $\frac{3}{4}$ | $\frac{1}{3}$ | $\frac{3}{10}$ | 0.3 | 25% | 0.4 | 0.25 | 100% | 0.27 | 0.75 | $66\frac{2}{3}\%$ | 12.5% | 40% |
| $\frac{1}{4}$ | 4% | 0.5% | 0.04 | $\frac{1}{100}$ | $\frac{2}{3}$ | 0 | 30% | 5% | $\frac{27}{100}$ | 0.05 | $33\frac{1}{3}\%$ | $\frac{2}{5}$ | $0.\bar{3}$ |
| 27% | 1% | $\frac{1}{1}$ | 0.01 | $\frac{1}{20}$ | $\frac{1}{8}$ | 0.125 | $\frac{1}{25}$ | $\frac{1}{200}$ | 0.005 | $0.\bar{6}$ | 0% | 0.0 | 1.0 |



Solving Absolute Value Equations

Cut on the dotted lines. Fold each vertex of the large square in to meet at the center with the printing on the outside.



Decimals

Put glue here.

Fractions

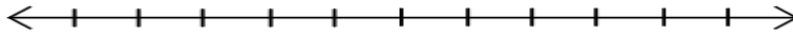
When comparing two fractions, you need a _____ .
Then, just compare the _____ .

$$\frac{5}{6} \bigcirc \frac{3}{4}$$

$$-\frac{7}{4} \bigcirc -\frac{5}{9}$$

A _____ can be a very useful tool when comparing a fraction to a decimal.

$$\frac{5}{8} \bigcirc 0.6$$



Comparing decimals requires you to _____ the decimal points. If you need to, use zeros as place holders.

$$1.8 \bigcirc 1.84$$