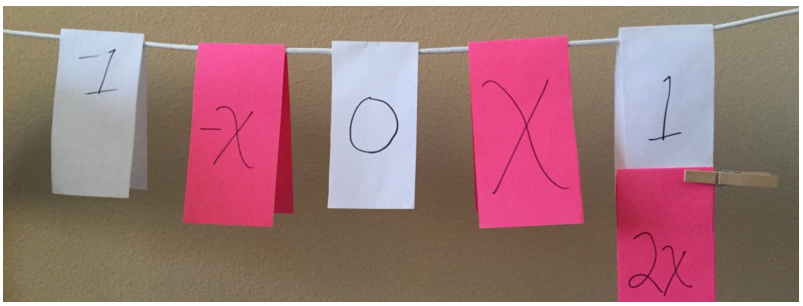
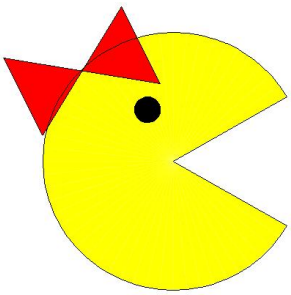
Creating *YOUR* 21st Century Redlands Classroom… One Task At A Time

Mar 28, 2016





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Reflections

How have you changed from a 20th Century teacher to a 21st Century teacher? Respond specifically to ***what*** you are teaching your students, and ***who*** in your class you are teaching.

Why is it critical to teach through tasks more often?

How will you facilitate more tasks in your class? Commit to at least one method that you learned today regarding the facilitation of group work or class discourse.

Where did you get your new task, and where/when in your upcoming curriculum will it go?

Group Work

- Development of higher-level thinking, oral communication, self-management, and leadership skills.
- Promotion of student-faculty interaction.
- Increase in student retention, self-esteem, and responsibility.
- Exposure to and an increase in understanding of diverse perspectives.
- Preparation for real life social and employment situations.

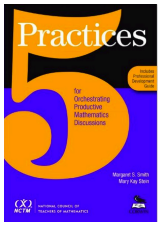
(from Cornell University Center of Teaching Excellence)

- **Random**
- **Heterogeneous**
- **Homogenous**

Task = Group Worthy

MPJ

Class Discourse



- **Anticipate**
- **Monitor**
- **Select**
- **Sequence**
- **Connect**

Gradual Release = I do, We do, Y'all do, You do
Gradual Reel In = You do, Y'all do, We do, I do

MPJ

Depth of Knowledge

D.O.K. Levels	Reasoning
1: Recall & Reproduction	---
2: Skill & Concept	Basic
3: Strategic Thinking	Complex
4: Extended Thinking	Extended

MPJ

D.O.K. Examples

(from www.robertkaplinsky.com)

Match the D.O.K. Level #1-4 with the corresponding question on sums of whole numbers.

Make the largest sum by filling in the boxes below using the whole numbers 1 through 9, no more than one time each.

□□ + □□ =

_____

Fill in the boxes below using the whole numbers 1 through 9, no more than one time each, so that you make a true equation.

□□ + 53 = □□

_____

Find the sum.

44 + 27 =

_____

How many total drink options does Coca-Cola's Freestyle machine offer?

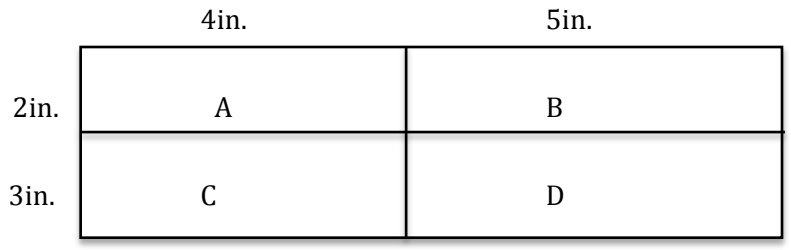
_____

Algebra 1 Names: _____
TVUSD **Date:**_____ **Period:** _____

Polynomial Farm

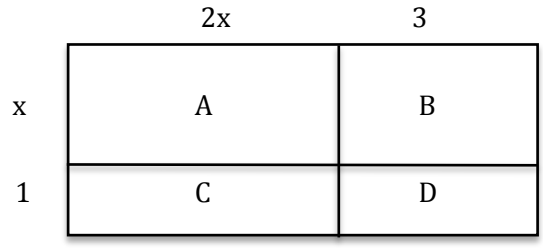
Part I (Intro & Investigate)

1. Find the perimeter and area of each small rectangle (A, B, C and D). Find the perimeter and area of the large rectangle composed of A, B, C and D.



	Perimeter	Area
A		
B		
C		
D		
Large Rectangle		

2. Find the perimeter and area of each small rectangle (A, B, C and D). Find the perimeter and area of the large rectangle composed of A, B, C and D. All measures given are in inches.



	Perimeter	Area
A		
B		
C		
D		
Large Rectangle		

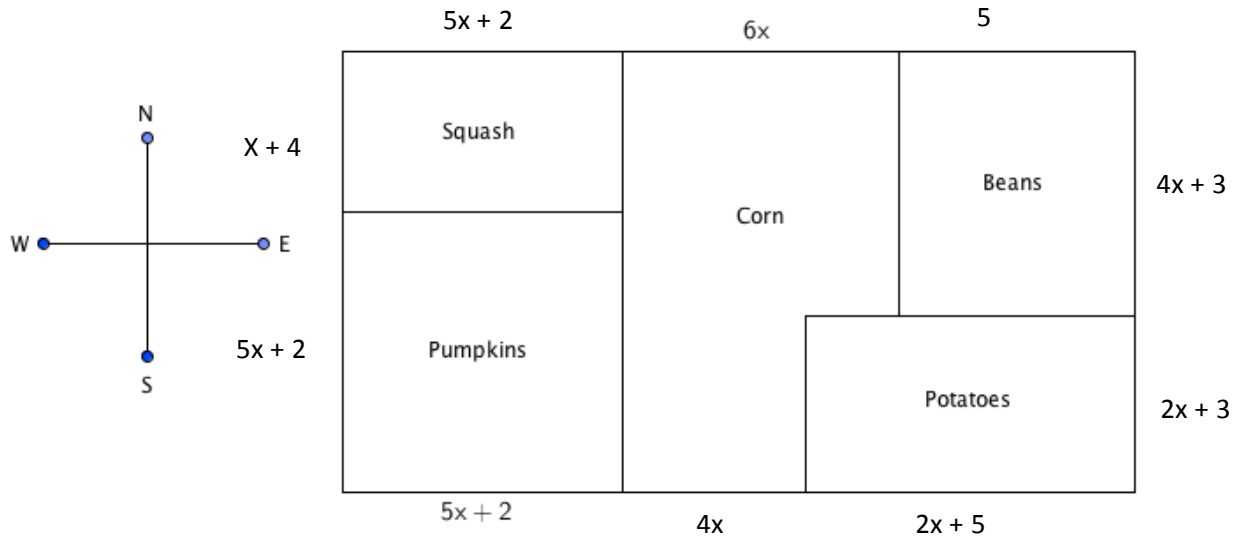
Algebra 1 Names: _____

TVUSD **Date:**_____ **Period:** _____

Polynomial Farm

Part II (Apply)

Directions: Farmer Bob is planting a field of crops this spring. He wants to plant squash, pumpkins, corn, beans, and potatoes. His plan for the field layout in feet is shown in the figure below. Use the figure and your knowledge of polynomials, perimeter, and area to solve the following:



3. Write a simplified expression that represents the length of the south fence line.

4. Find the perimeter of the pumpkin field.

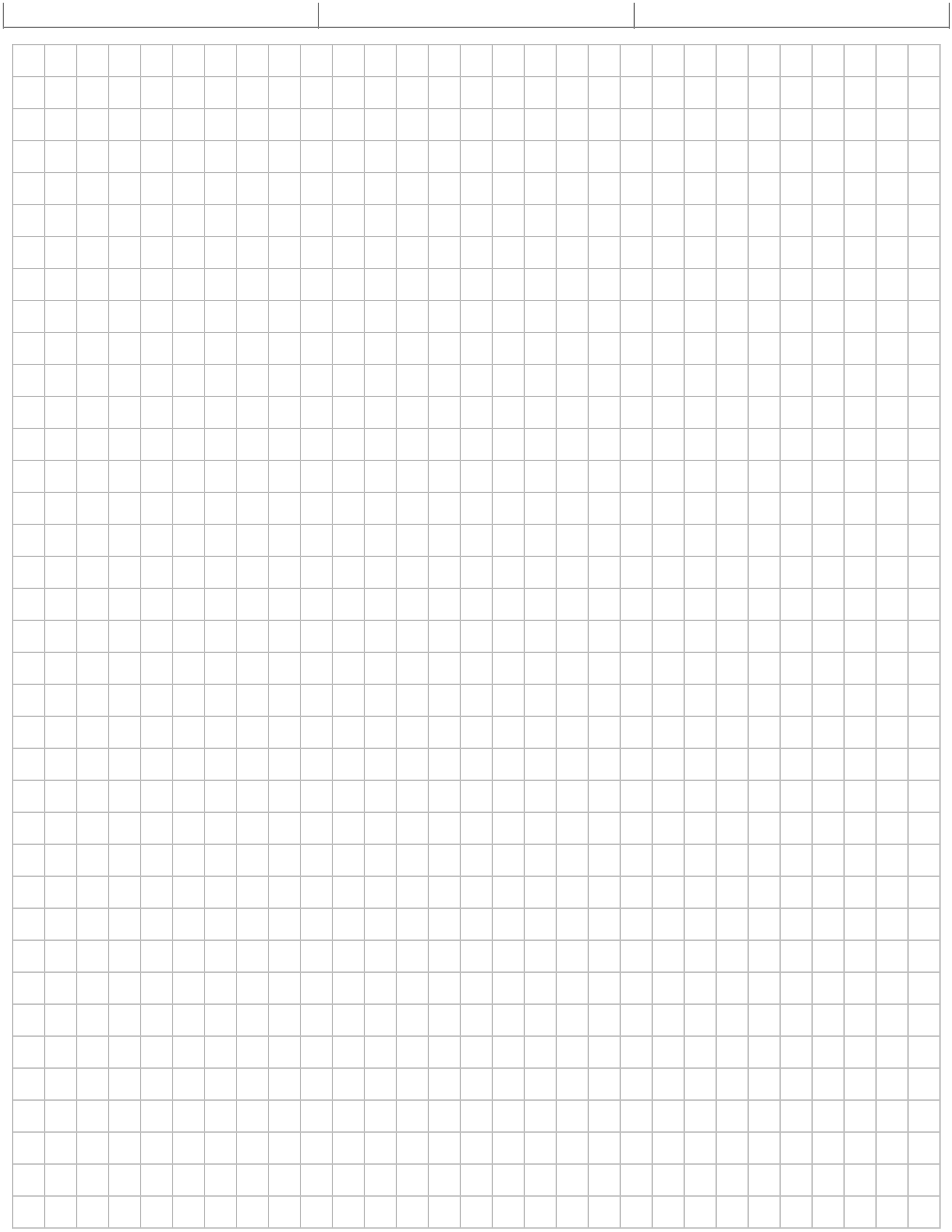
5. Find the area of the squash field.

6. Find the perimeter and area of each section of the Field.

	Perimeter	Area
Squash		
Pumpkin		
Beans		
Potatoes		
Corn		
Entire Field		

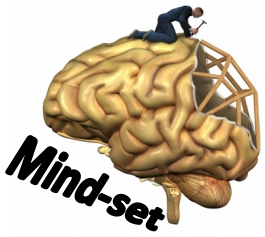
Extension: a) In this field scenario, is x a variable or an unknown quantity? _____

b) If it is variable, explain. If it is an unknown quantity, use equivalent lengths to find x.



Teaching Students to

THINK, COMMUNICATE, COLLABORATE & CREATE through Effective Teaching Principles



4 Claims:

Concepts & Procedures, Problem Solving, Communicate Reasoning, Modeling & Data Analysis

Math Goals

(Dual Targets)

Content Target:

Practice Target

COMMON CORE STATE STANDARDS INITIATIVE

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Representations

(Multiple Representations)

Meaningful Discourse

(Feedback)

Purposeful Questioning

(Dig Deeper & Reach Higher)

Procedural from Conceptual

(Progression)

Tasks & Access

(Engagement & Low Floor/High Ceiling)

Productive Struggle

(Monitor & Adjust)

Evidence of Student Thinking

(Collect & Reflect)

Rigor: Fluency, Deep Understanding, Application, Dual Intensity

The Clothesline

For each set, record the given values, expressions or drawings. After the discussion of their placement on the clothesline, record them on the number line.

1)

_____, _____, _____

2)

_____, _____, _____

3)

_____, _____, _____

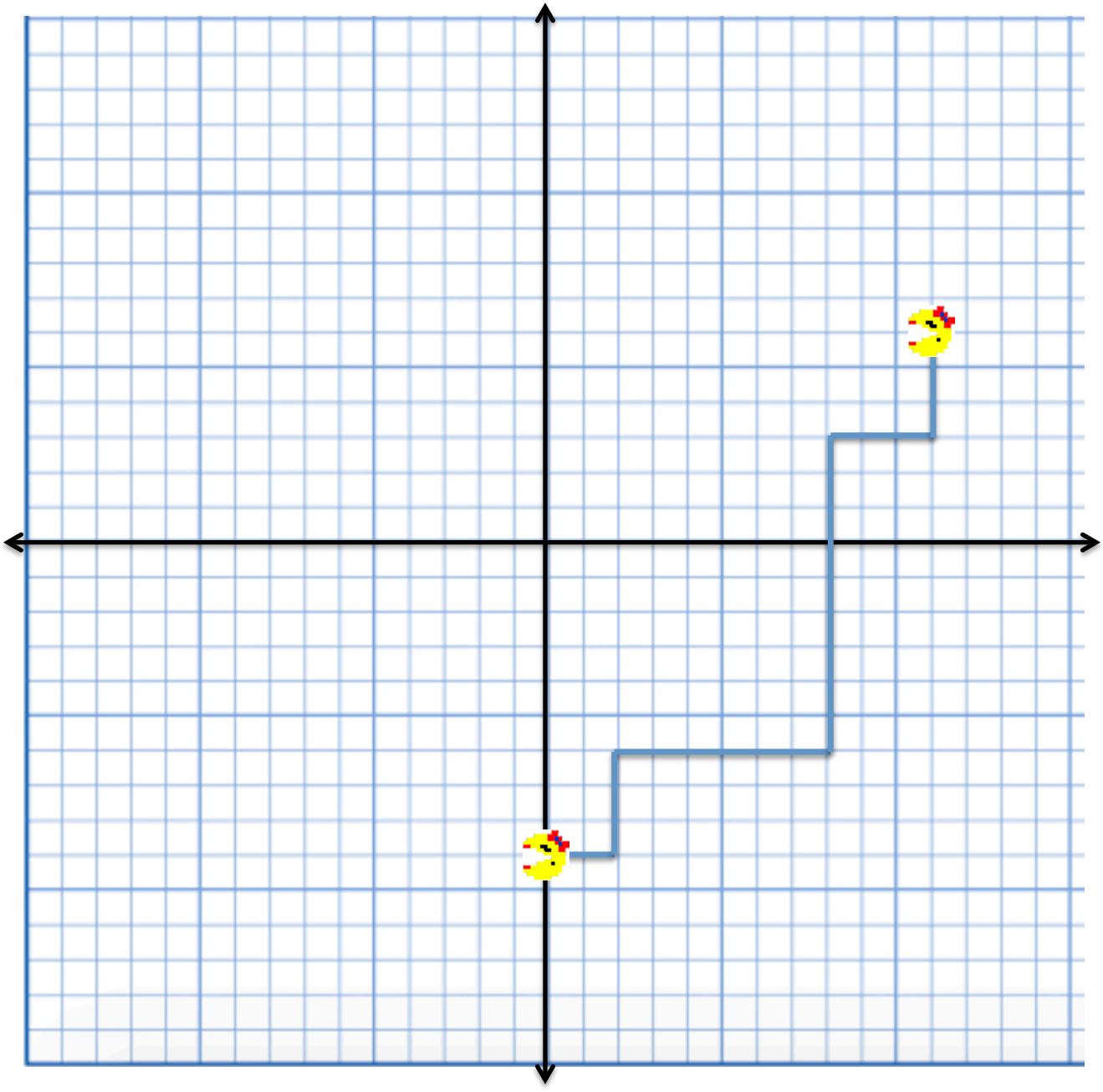
4)

_____, _____, _____

TVUSD
Geometry

Name _____

Ms. Pac-Man



http://bit.ly/MsPac

Ms. Pac-Man

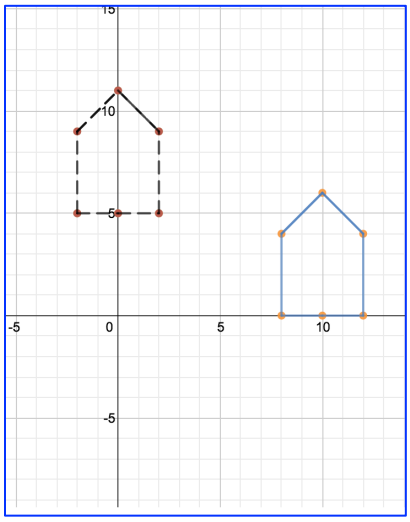
Description	Rule
1. Start at (0, -9)	1. _____
2. Reflect across x = _____	2. _____
3. _____	3. _____
4. _____	4. _____
5 _____	5. _____
6. _____	6. _____
7. _____	7. _____
8. _____	8. _____
9. _____	9. _____
10. _____	10. _____
11. _____	11. _____
12. _____	12. _____
13. _____	13. _____
14. _____	14. _____
_____	_____

TVUSD
Geometry

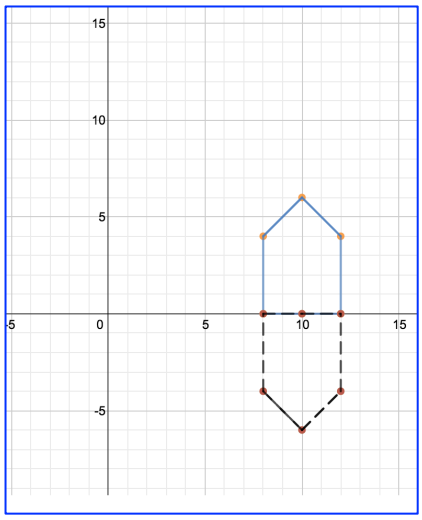
Name _____

Bend the Rules ... of Transformations
Discovery

http://mathmistakes.org/complex/rules.html



$(x,y) \mapsto (\square, \square)$



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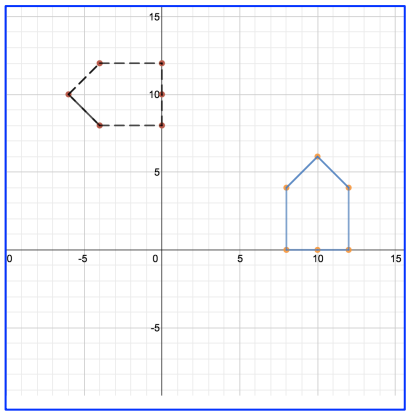
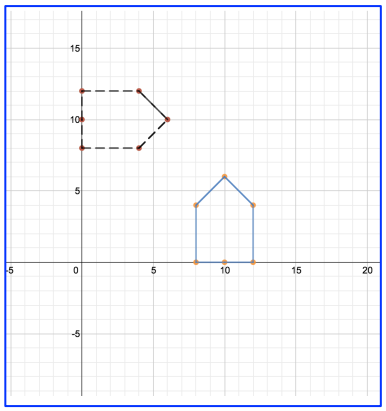


$(x,y) \mapsto (\square, \square)$



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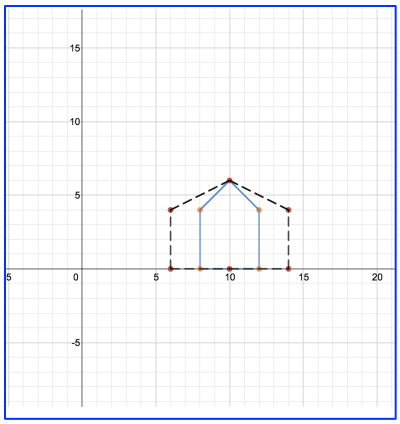

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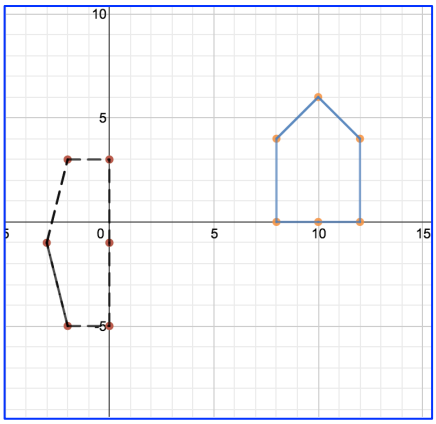
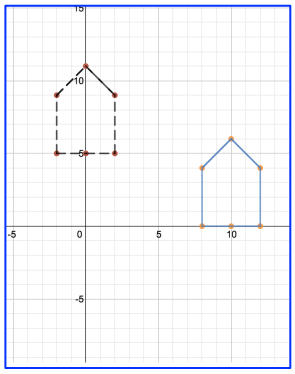


$(x,y) \mapsto (\square, \square)$

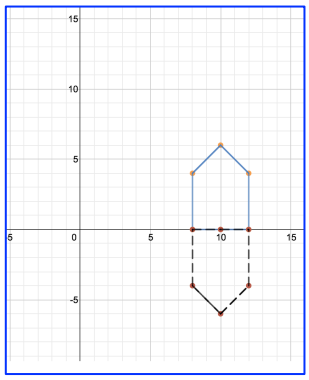
Bend the Rules … of Transformations

Generalizations



Type: _____

General Rule: (x, y) -> (,)



Type: _____

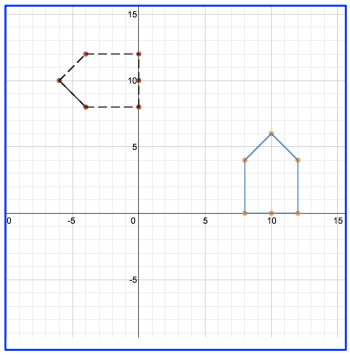
General Rule for a:

_____over the x-axis:

(x, y) -> (,)

_____over the y-axis:

(x, y) -> (,)



Type: _____

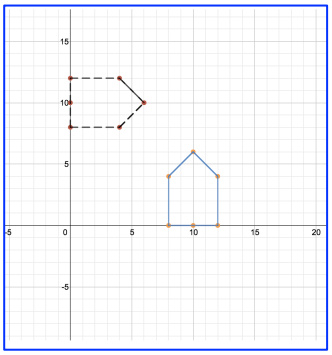
General Rule for a:

90° _____clockwise:

(x, y) -> (,)

90°_____ counterclockwise:

(x, y) -> (,)



Type: _____

General Rule for a:

_____over the line y = x:

(x, y) -> (,)

_____over the line y = -x:

(x, y) -> (,)

High Cognitive Demand Tasks
Planning Template

Grade Level: _____ **Unit: _____**

BIG IDEA(s) of the Unit

1) _____
2) _____
3) _____

TASK

What is the task being given to the students?

FOCUS (Which Big Idea?)

DUAL INTENSITY

Content Standard(s) **Mathematical Practice Standard(s)**

ANTICIPATING

Methods (solution paths) students may use to address the task.

Likely errors/misconceptions

Warm-up/Boot Camp
What are common misconceptions students have regarding this content?