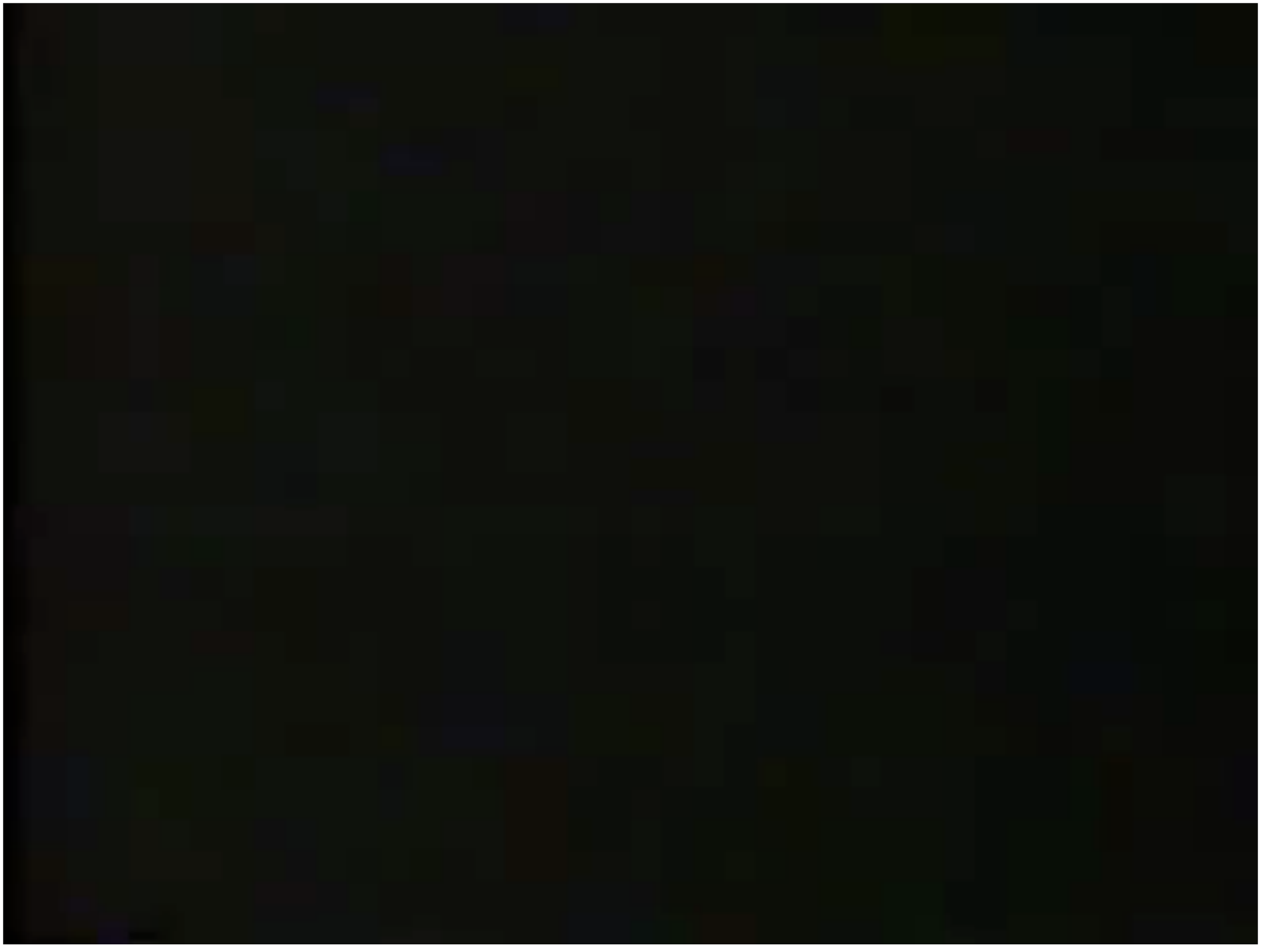

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Square Root Equations

Solve each equation. Check for multiple solutions.

1) $11 - \sqrt{d + 12} = \sqrt{d + 12}$

2) $5 - \sqrt{c - 2} = \sqrt{c - 2}$

3) $10 = (\frac{r}{5})^{\frac{1}{2}}$

4) $(2p - 9)^{\frac{1}{2}} + 4 = p$

5) $\sqrt{8g} = g$

6) $10 = \frac{\sqrt{y}}{\sqrt{8}}$

7) $(11 - c)^{\frac{1}{2}} = (\frac{c}{9})^{\frac{1}{2}}$

8) $\sqrt{4z + 14} = \sqrt{9z - 15}$

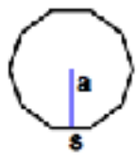
9) $(12h)^{\frac{1}{2}} = (11 + 14h)^{\frac{1}{2}}$

10) $11 = (k + 3)^{\frac{1}{2}}$

Frankenstein's Worksheet

Identify and Calculate the Area and Perimeter for each Polygon.

1)



s = 2.5 Inches

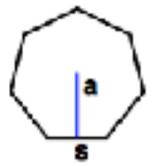
a = 3.8471 inches

Area: _____

Perimeter: _____

Type: _____

2)



s = 2.7 cm

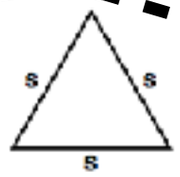
a = 2.8033 cm

Area: _____

Perimeter: _____

Type: _____

3)



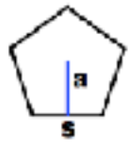
s = 7.2 yds

Area: _____

Perimeter: _____

Type: _____

4)

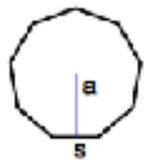


s = 5.2 cm

a = 3.5786 cm

Area: _____

5)

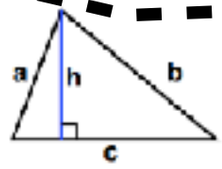


s = 2.8 inches

a = 3.5717 inches

Area: _____

6)



a = 6.3 yds b = 9.22 yds

c = 9.3 yds h = 5.9 yds

Area: _____

Simplifying Linear Expressions (A)

Simplify each expression by combining like terms.

1. $3w + 7 - 9w$
2. $-7w - 8 - 2w$
3. $6s - 9 + 4s$
4. $-7 + 2 - 7q$
5. $-6y - 4y - 9y$

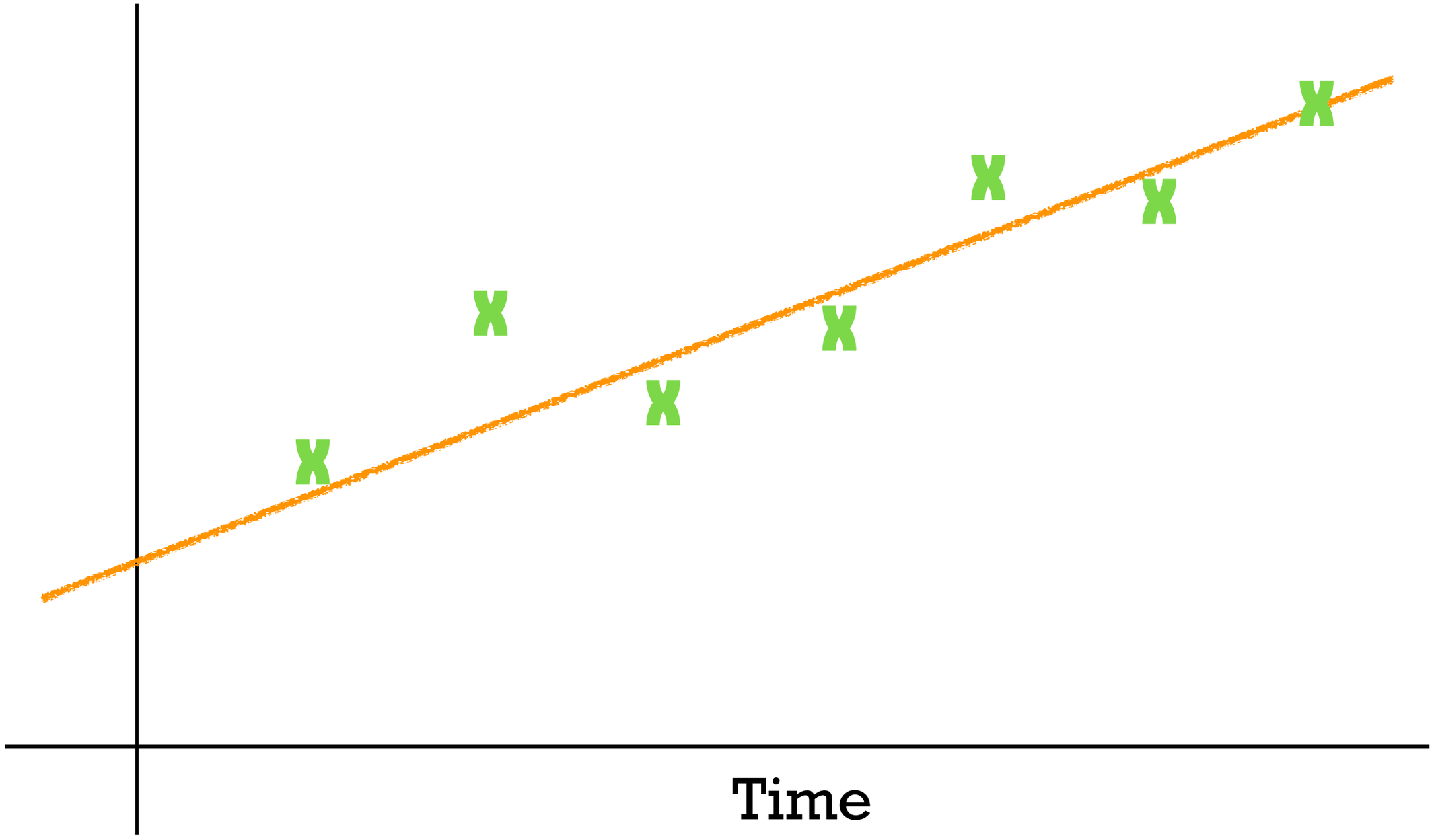
CD-ROM!!

6) Dan and Melanie were able to paint a house in 4 hours together. It takes Melanie 12 hours to finish the same job alone. Without help, how long would it take Dan to finish the same job ?

6) Dan and Melanie were able to paint a house in 3 hours together. It takes Melanie 10 hours to finish the same job alone. Without help, how long would it take Dan to finish the same job ?

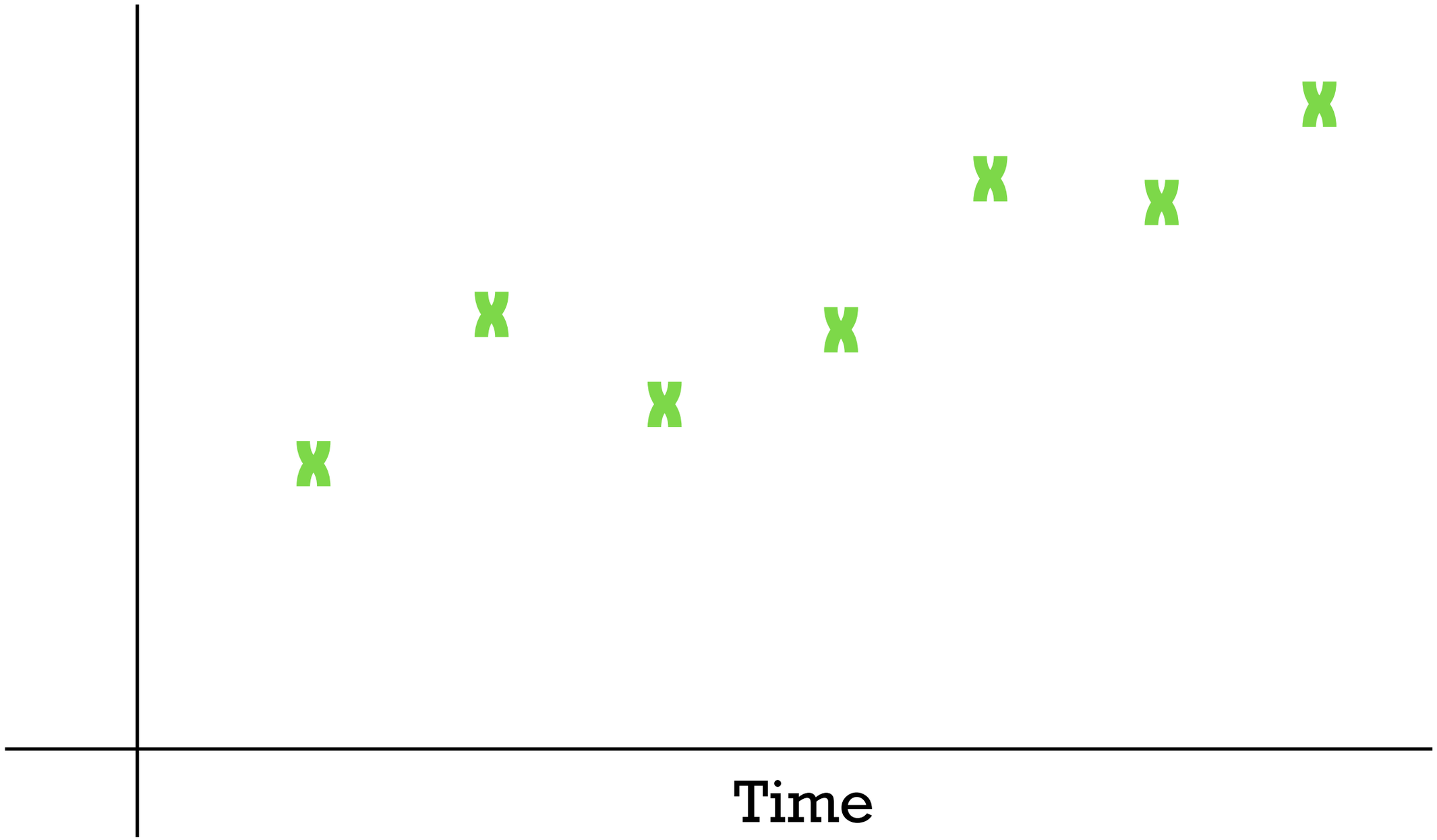
6) Dan and Melanie were able to paint a house in 8 hours together. It takes Melanie 13 hours to finish the same job alone. Without help, how long would it take Dan to finish the same job ?

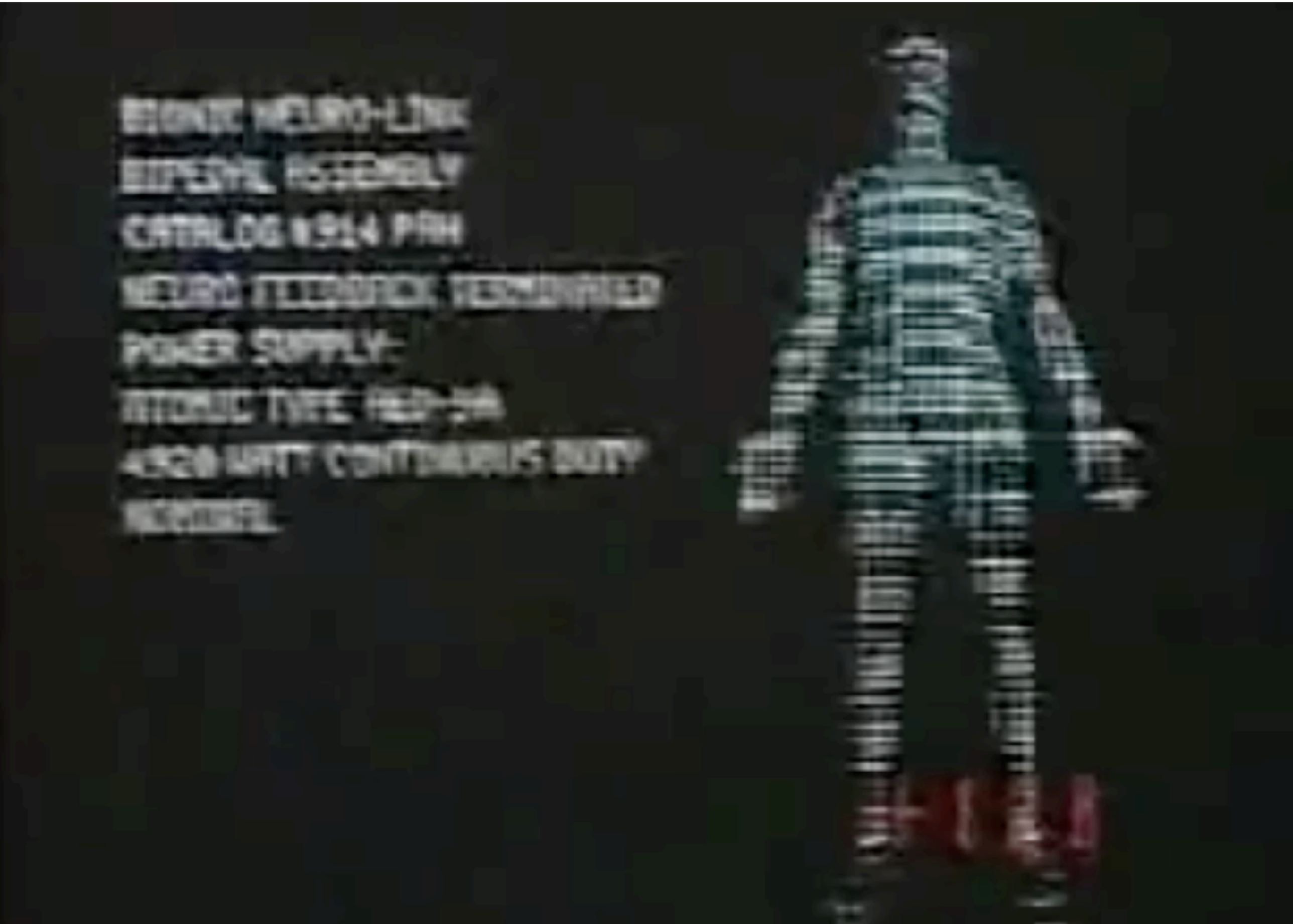
What kids are supposed to know / assessed on

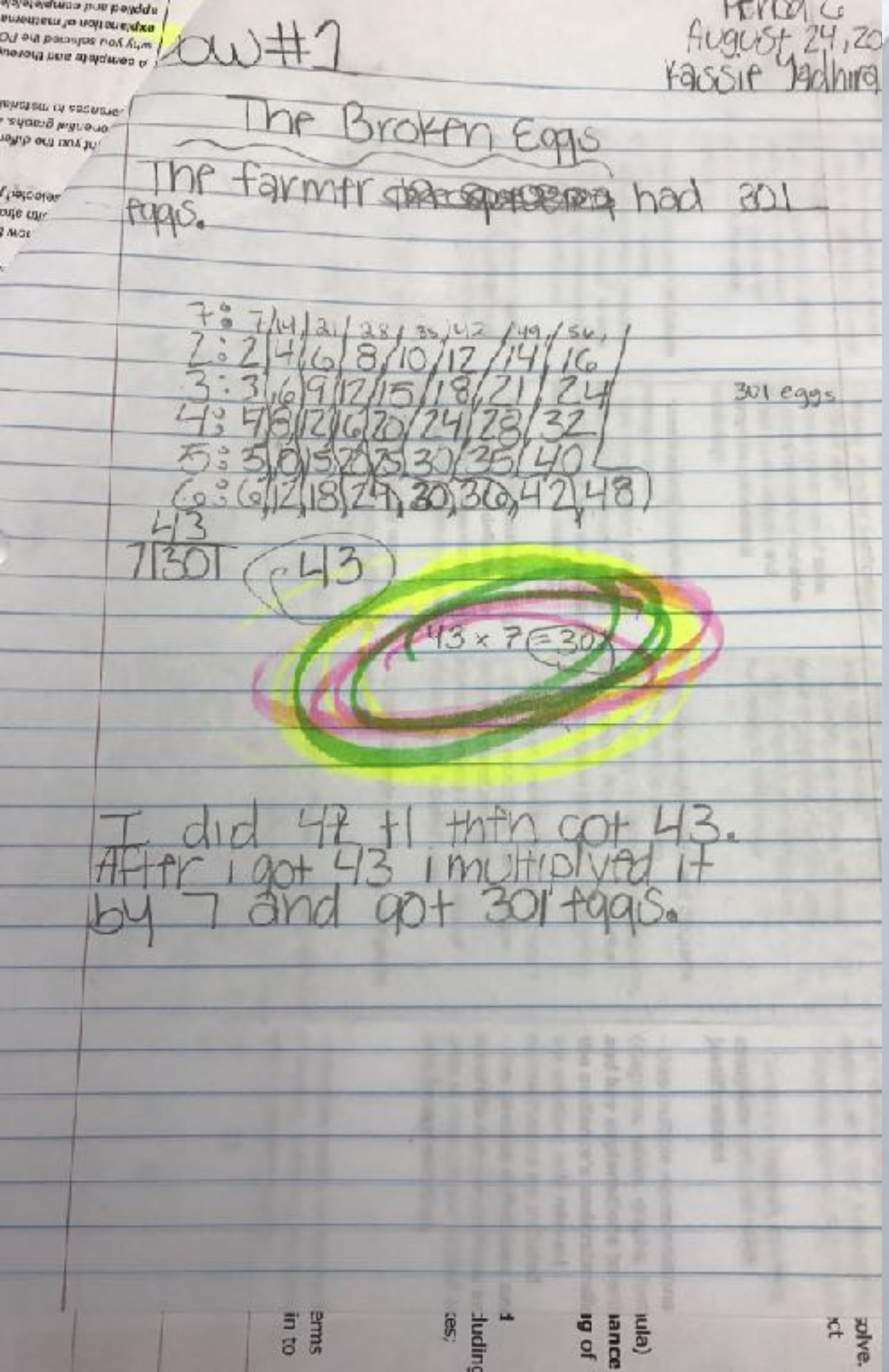


What kids know

How are you going to tell this story?







Alice Portfolio

The General Laws

The general laws of exponents we have learned was Additive Law of Exponents, Law of Repeated Exponentiation, and The Law of Logathirams. The Additive Law of Exponents is when you add the exponents together, but the only way you can add them is is the bases be the same. For example say I have base 3 cake and I eat 4 ounces, and base 3 cake and I eat 7 ounces, it would be 3^4 X 3^7= 3^4+7= 3^11.

The Law of Repeated Exponention is for example: 2^3 x 2^3 which equals (2^3)^2.

The Law of Logathirams helps us to find the variable of an unknown exponent. For example: "How many ounces of base 10 cake does Alice need to eat to become 239,000 times her hieght?" In exponential form we put it as: 10^x=239,000. In logarithmic form we put it as: $\log_{10} 239{,}000 = X$. "Log" is asumed to be "$\log_{10}$."

"Log base B of A equals X----> $\log_b a = x$."

All Roads lead to Rome

The method I used was all of them. For example in alice I said "The reason why 5^0=1 works is because if she doesn't eat anything then she wouldn't grow shrink, her hieght would remain the same." Another example would be the graph after graphing I got when x=0, y=1..

Exponents to Solve a Problem

The activity I chose from the Alice Unit was "Many Meals for Alice". In many meals for alice we used exponents to find her hieght after she eats cake. A problem from this activity was: "Suppose Alice eats 3 ounces of cake at each m What will her hieght be multiplied by after two meals? After three meals? After four? After M meals?" We were given the amount of base 2 cake. So what I di was I took the base and the once of cake she ate, which was 2^3= 1 meal.. 2^3

Quality Tasks

- Finding tasks
- Adapting and designing tasks

Deploying and Assessing Tasks

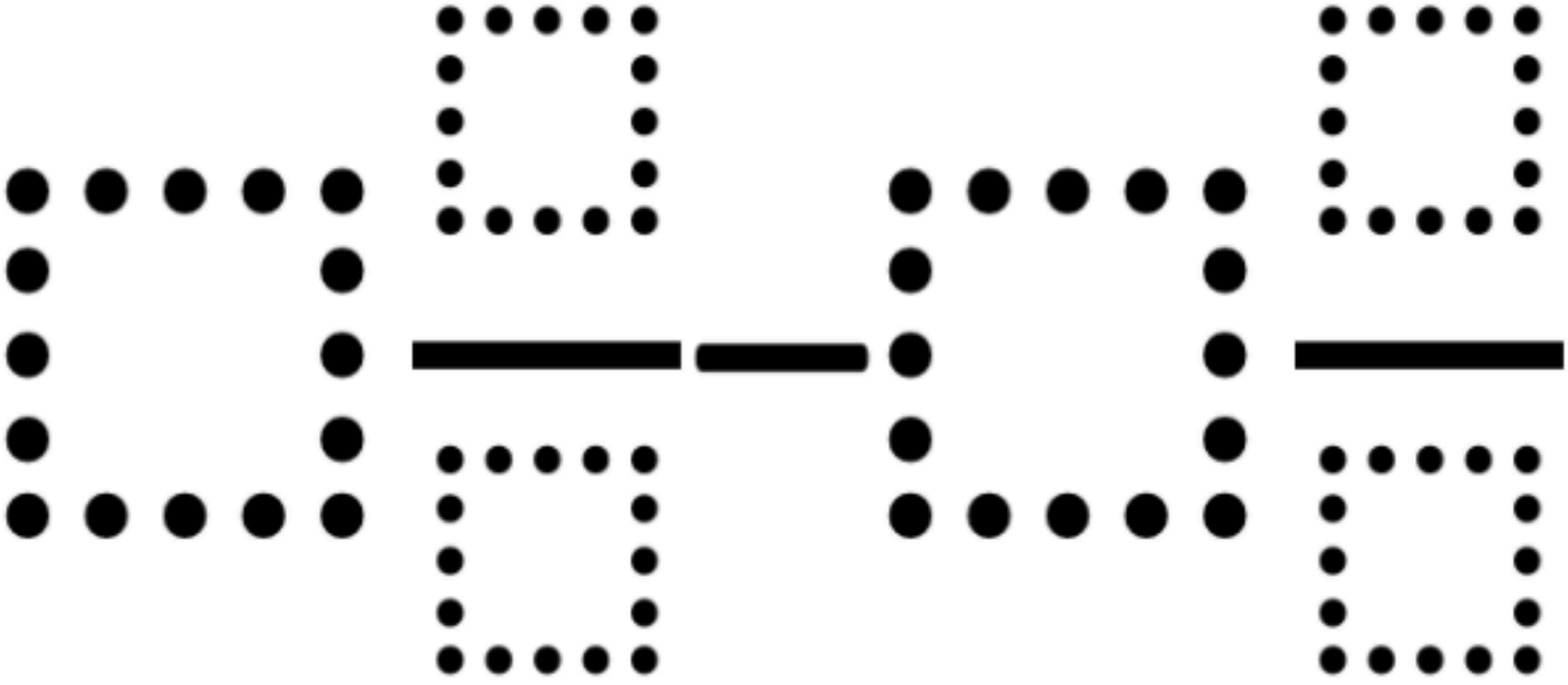
- Rubrics with Common Indicators
- Reflection

Geoff's First Theorem of Task Quality:

A quality task can be accessed by students a couple grades below, and still be found challenging a couple grades above.

SUBTRACTING MIXED NUMBERS

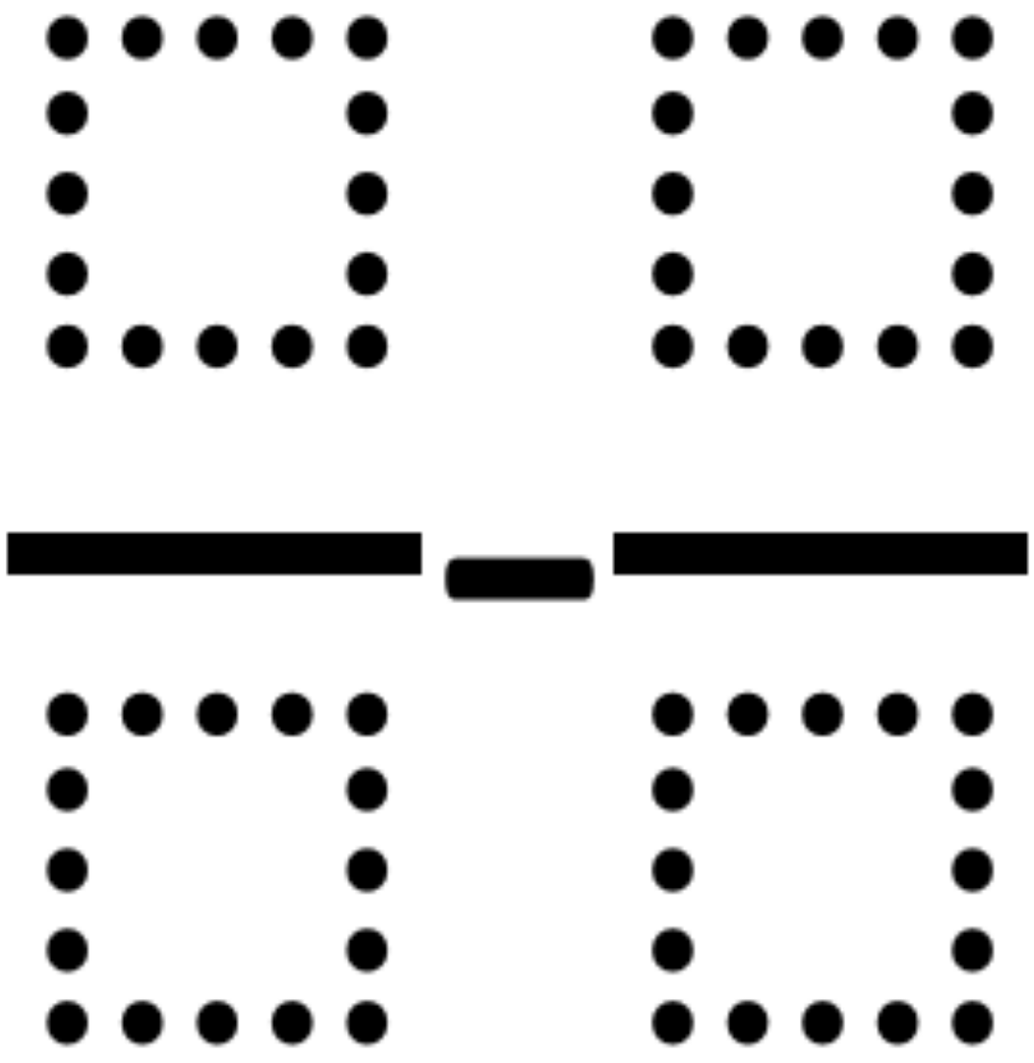
Directions: Make the smallest difference by filling in the boxes using the whole numbers 1-9 no more than one time each.



How do you know you have the smallest difference?

SUBTRACTING FRACTIONS

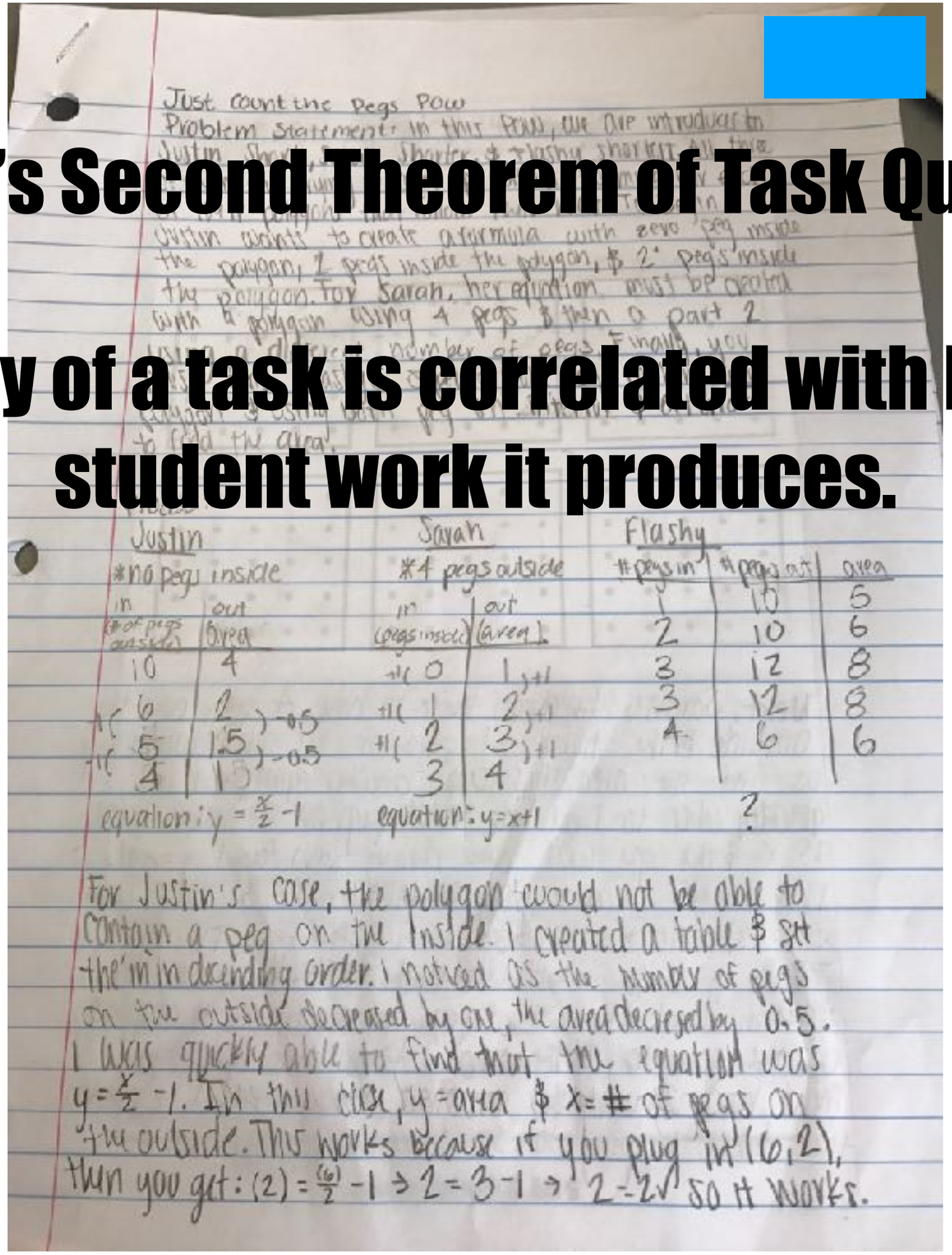
Directions: Make the smallest (or largest) difference by filling in the boxes using the whole numbers 1-9 no more than one time each.



"Make the smallest non-zero difference."

Geoff's Second Theorem of Task Quality:

The quality of a task is correlated with how much student work it produces.



You **can't** really have a robust conversation about this artifact.

Name LaKai

Reteaching
5-5

Using Rounding to Estimate

You can use rounding to estimate products.

Use rounding to estimate 7 × 28.

First, round 28 to the nearest ten.
28 rounds to 30.

Then, multiply.
7 × 30 = 210

So, 7 × 28 is about 210.

Use rounding to estimate 7 × 215.

First, round 215 to the nearest hundred.
215 rounds to 200.

Then, multiply.
7 × 200 = 1,400

So, 7 × 215 is about 1,400.

Estimate each product.

1. 6 × 88 is close to 6 × 90
2. 279 × 4 is close to 300 × 4
3. 7 × 31 7x30=210
4. 38 × 5 200
5. 21 × 6 6x20=120
6. 3 × 473 3x500=1500
7. 5 × 790 5x800=4,000
8. 488 × 6 500x6=3000

9. **Number Sense** Estimate to determine if 5 × 68 is greater than or less than 350. Tell how you decided.

So the anser would be 350.

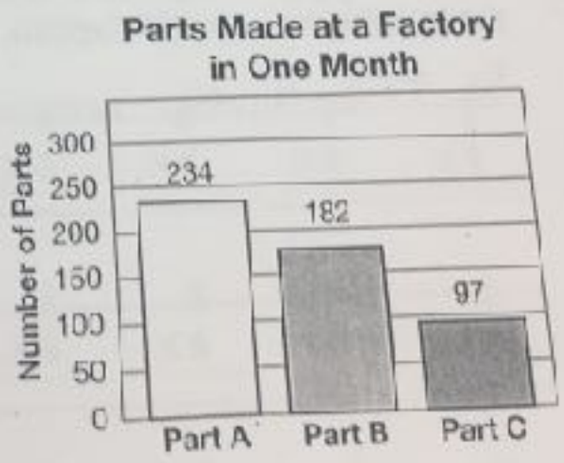
10. Estimate how many of Part C would be made in 4 months.

400

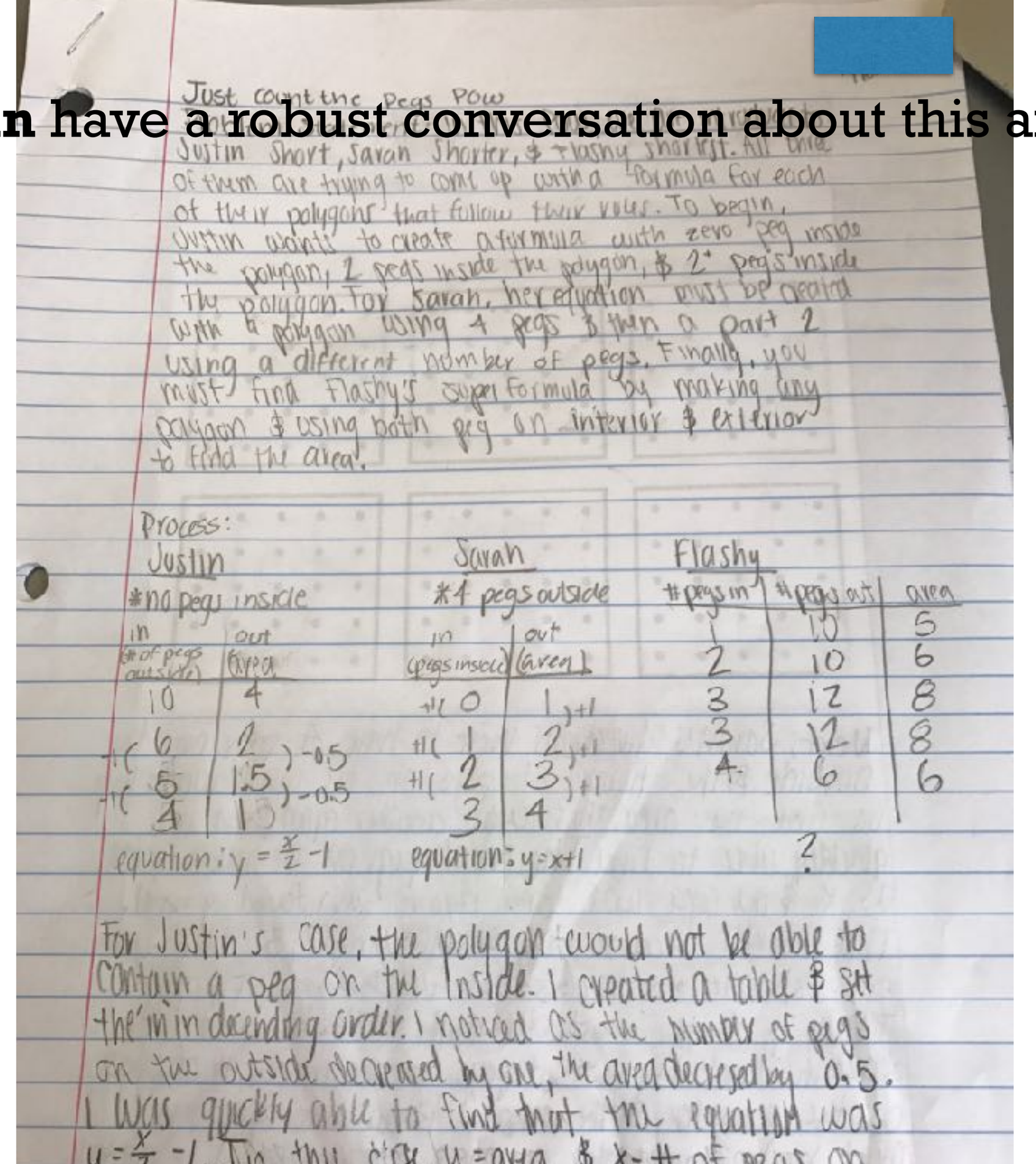
11. Estimate how many of Part B would be made in 3 months.

600

12. Estimate how many of Part A would be made in 9 months.



You **can** have a robust conversation about this artifact.



Just count the pegs POW

Justin Short, Sarah Shorter, & Flashy Shortst. All three of them are trying to come up with a formula for each of their polygons that follow their rules. To begin, Justin wants to create a formula with zero peg inside the polygon, 2 pegs inside the polygon, & 2+ pegs inside the polygon. For Sarah, her equation must be created with a polygon using 4 pegs & then a part 2 using a different number of pegs. Finally, you must find Flashy's super formula by making any polygon & using both peg on interior & exterior to find the area.

Process:

Justin

*no pegs inside

in (# of pegs outside)	out (area)	
10	4	
6	2	-0.5
5	1.5	-0.5
4	1	

equation: $y = \frac{x}{2} - 1$

Sarah

*1 pegs outside

in (pegs inside)	out (area)	
0	1	+1
1	2	+1
2	3	+1
3	4	

equation: $y = x + 1$

Flashy

# pegs in	# pegs out	area
1	10	5
2	10	6
3	12	8
3	12	8
4	6	6

?

For Justin's case, the polygon would not be able to contain a peg on the inside. I created a table & sat the in in ascending order. I noticed as the number of pegs on the outside decreased by one, the area decreased by 0.5. I was quickly able to find that the equation was $y = \frac{x}{2} - 1$. In this case, y = area & x = # of pegs on

Where can I find quality tasks?

UNIT 8.2: Linear Relationships	8-EE.5,6, 7-RP.2,3	15
The Domino Effect (Mathalicious)	8-EE.5, 8-F.5	1
Cheesy Goldfish (Yummymath)	8-EE.5, 8-F.4, 7-RP.2,3	2
Rise and Run Triangles (NCTM Illuminations)	8-EE.5,6	1
Staircases and Steepness (Fawn)	8-EE.5	1
Journey (MARS)	8-EE.5,6	1
Shelves (MARS)	8-EE.5,6	1
Colinear square corners (David)	8-EE.5, RP.1,2,3	1*
Bike Ride (MARS)	8-EE.5,6	1
Constant Dimensions (NCTM	8-EE.5,6	1

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Search for "Portfolio Problems"

Or check out the
"Common Core Problem Based Curriculum Maps"

How would you adapt a task? After looking at the following three tasks, discuss with your group how you would adapt one of them to yield the kind of work for our assessment?

Task A

1. A house has a 500-cubic-foot propane tank to provide gas to its appliances. The family uses an average of 0.95 cubic foot per day. Use the information to answer the following questions:

   a. Write an equation for the number of cubic feet of gas in the tank after t days.

1

   b. To the nearest cubic foot, how much gas will have been used in 45 days?

   c. To the nearest day, how long will it take for the entire tank to be used up?

Task B

30. **Nutrition** Half a pepperoni pizza plus three fourths of a ham-and-pineapple pizza contains 765 Calories. One fourth of a pepperoni pizza plus a whole ham-and-pineapple pizza contains 745 Calories. How many Calories are in a whole pepperoni pizza? How many Calories are in a whole ham-and-pineapple pizza?

Task C

54. **Open-Ended** Give a counterexample to show that $(x + y)^2 = x^2 + y^2$ is false.

How can I adapt tasks from existing tasks? What about designing tasks?

Remove the steps and sub-problems

Make it into an optimization problem: “most,” “least,” “highest,” “lowest,” “closest”, “shortest”, “longest,” “fastest,” “slowest”

Encourage rough draft thinking to be put to paper
Need-to-knows
Notice/Wonder
Brainstorming

Quality Tasks

- Finding tasks
- Adapting and designing tasks

Deploying and Assessing Tasks

- Rubrics with Common Indicators
- Reflection

Your grade:

80

What exactly does this mean?

Surface level problem ✓

Surface level problem ✓

Surface level problem ✓

Surface level problem ✓

Surface level problem ✓

Surface level problem ✓

Surface level problem ✓

Deeper problem ✗

Surface level problem ✓

Deeper problem ✗

8/10

80%

What do you notice about this rubric?

What do you wonder?

Rubric: Energy Efficiency

	EMERGING	E/D	DEVELOPING	D/P	PROFICIENT	P/A	ADVANCED
Content / Problem Specific	Solution does not contain an equation that models the cost of energy use over time Did not support your prediction by using one of [illegible] (substitution [illegible]		Solution contains an incomplete equation that incorrectly models the cost energy use over time Supported your prediction by using one [illegible] (substitution [illegible] graphing		Solution contains an equation that models the cost of energy use over time, given the assumptions about element price. Supported your prediction by using two mathematical [illegible] (substitution and elimination) in addition to graphing		Solution contains an explained equation that models energy use over time, given the assumptions about element price. Supported your prediction by explaining how you used two mathematical models (substitution and elimination) in addition to graphing
Reasoning and Proof	• Provides **incorrect or incomplete solutions without** justifications.		• Provides **partially correct solutions** without logic or justification		• Constructs **logical, correct, complete solution**		• Constructs **logical, correct, complete solution with justifications**
Communication and Representation	• Uses representations (diagrams, tables, graphs, formulas) in ways that **do not apply to the task or are incorrect**		• Uses representations (diagrams, tables, graphs, formulas), though correct, **do not properly demonstrate** the chain of reasoning; extraneous representations may be included		• Uses multiple representations (diagrams, tables, graphs, formulas) to properly **demonstrate** the chain of reasoning		• Uses multiple representations (diagrams, tables, graphs, formula) to **help the audience** follow the chain of reasoning

Rubrics with Common Indicators

Rubric: Energy Efficiency

	EMERGING	E/D	DEVELOPING	D/P	PROFICIENT	P/A	ADVANCED
Content / Problem Specific	Solution does not contain an equation that models the cost of energy use over time Did not support your prediction by using one other mathematical model (substitution or elimination)		Solution contains an incomplete equation that incorrectly models the cost energy use over time Supported your prediction by using one mathematical model (substitution) in addition to graphing		Solution contains an equation that models the cost of energy use over time, given the assumptions about element price. Supported your prediction by using two mathematical models (substitution and elimination) in addition to graphing		Solution contains an explained equation that models energy use over time, given the assumptions about element price. Supported your prediction by explaining how you used two mathematical models (substitution and elimination) in addition to graphing
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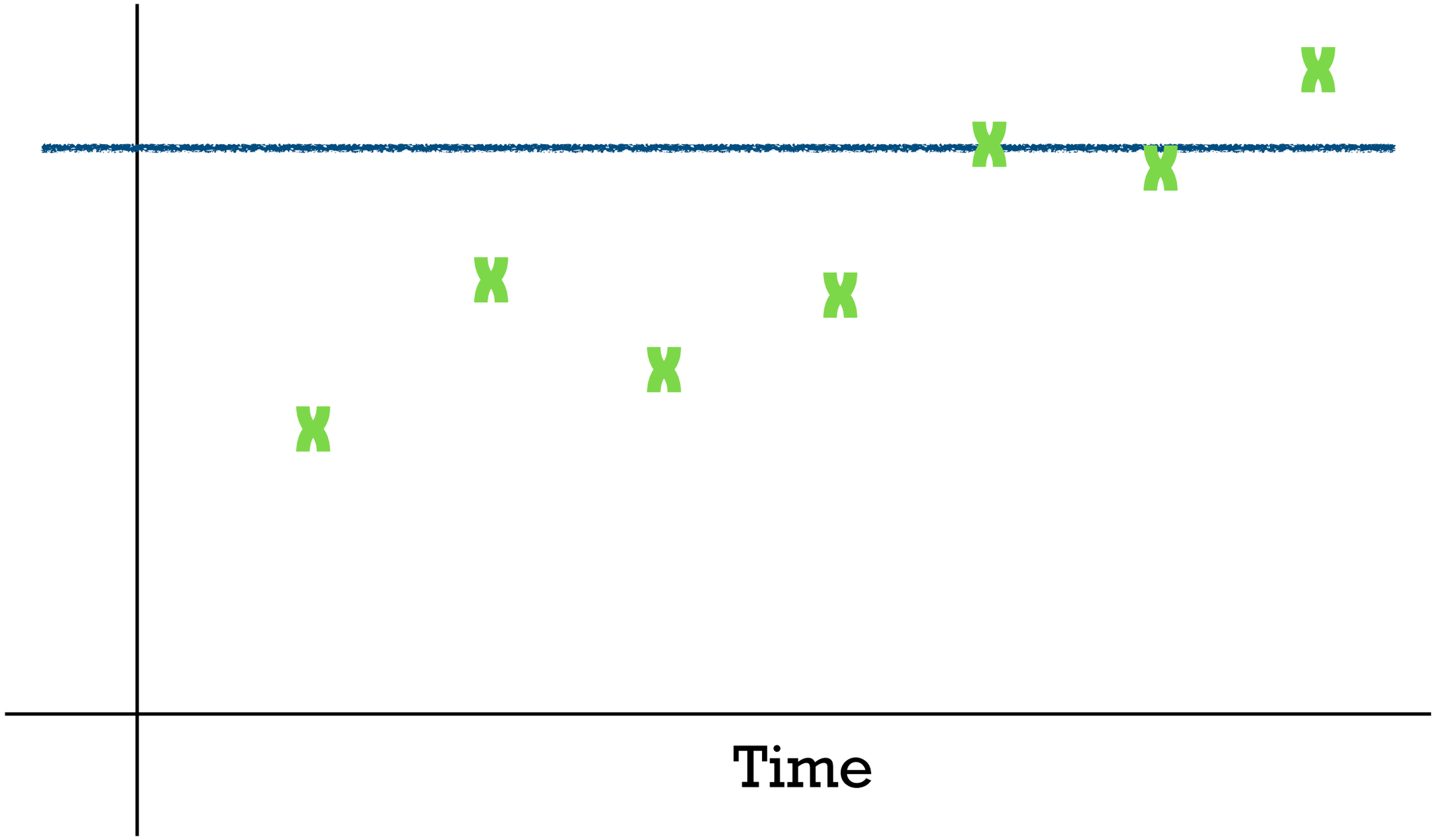
Problem-specific indicators - go ahead and grade these, if you must

Common indicators that can be applied to multiple problems

	A	B	C	D	E	F	G	H	I	J	K
1	Student Name	Student ID		PA: 1st Six-Weeks	Link to Student Work	PA: 2nd Six-Weeks	Link to Student Work	PA: 3rd Six-Weeks	Link to Student Work	PA: 4th Six-Weeks	Link to Student Work
2	Richy	203010	Math - Problem Solving	D	[link]	D	[link]	D	[link]	P	[link]
3			Math - Reasoning and Proof	P		A		A		P	
4			Math - Connections	E		E		D		D	
5	Jess	203221	Math - Problem Solving	E	[link]	D	[link]	A	[link]	P	[link]
6			Math - Reasoning and Proof	A		A		A		P	
7			Math - Connections	D		D		D		D	


Time

Reflection

Both in the moment and after a time

In the moment

After a time

Tools

Turn and Talk!

What kind of prompt(s) would you ask to elicit student reflection just after a task?

After a time (i.e. end to the semester)?

What types of tools would you use to capture this reflection?

Reflection

Both in the moment and after a time

In the moment

“What was particularly challenging about this problem and how did you handle it?”

“How effective were you as a teammate during this task?”

After a time

“Looking back at your work throughout the year, in what areas have you grown the most?”

“What do you want your teacher next year to know about you as a mathematician?”

Tools

Journals
Reflection Prompts
Digital portfolios (i.e. google drive)

This year I learned the difference between knowing how to do something and understanding something. This is because most of the stuff I learned this semester was new and I didn't really understand it, so I knew that to get a good grade I would have to understand what was being taught, not just know it. An example of this was when we were learning how to do rotations, I didn't know how to do it at all so I looked it up online, asked for help from teachers, asked for help from peers, and most importantly, after I learned it, I made sure to practice it....Everything in this unit was challenging, but my mistakes gave me the drive to move forward and work harder.

Some people see how I'm able to do the math, or they see my grades and they say, "Oh, you must be some kind of genius." That's not true, I'm no where near genius, I'm just a hard worker. If I don't understand something, I ask for help, if I'm not good at something, I practice more, if I need to do something, I put my all into my work. If this is what you call being a genius, then everyone has the ability to be one if they just tried a little harder.

— Casey, Grade 10

Our WHAT

Quality Tasks

- Finding tasks
- Adapting and Designing tasks

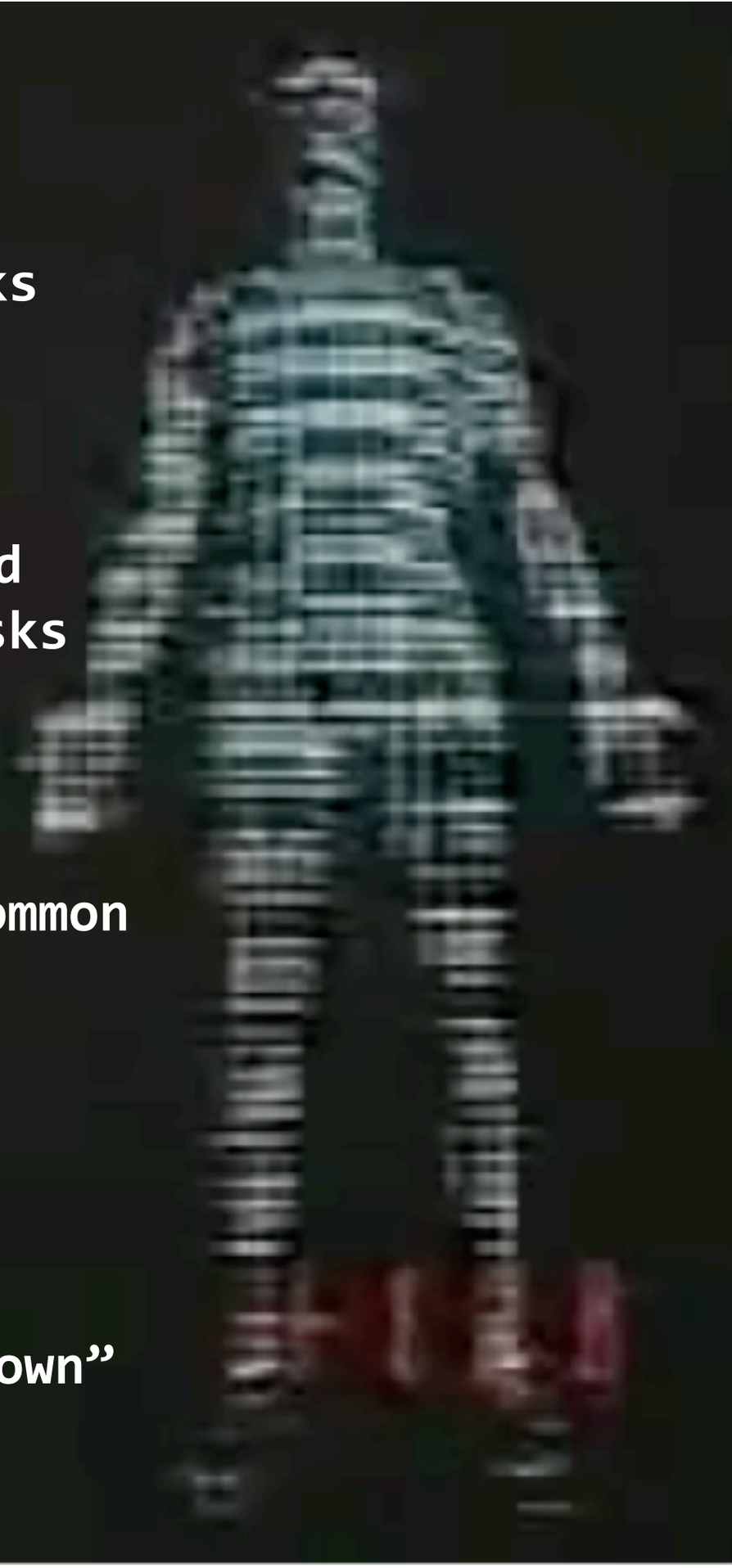
Our HOW

Deploying and Assessing Tasks

- Rubrics with Common Indicators
- Reflection

Our WHY

— “Damn, I’ve grown”



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WE CAN REBUILD IT, WE HAVE THE TECHNOLOGY

HOW RICH TASKS CAN MAKE ASSESSMENT BETTER, STRONGER

Columbus Hall GH

9:45 AM - 11:00 AM

WE CAN REBUILD IT, WE HAVE THE TECHNOLOGY

HOW RICH TASKS CAN MAKE ASSESSMENT BETTER, STRONGER

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Columbus Hall GH | 9:45 AM - 11:00 AM