

Victor Elementary School District

ROBERT KAPLINSKY



@robertkaplinsky





IVE

FOX
NEWS

Junction



PGR
PROCURADURÍA
GENERAL DE
LA REPÚBLICA

**SUBPROCURADURIA
DE INVESTIGACIÓN ESPECIALIZADA
EN DELINCUENCIA ORGANIZADA**

PGR
PROCURADURÍA
GENERAL DE
LA REPÚBLICA

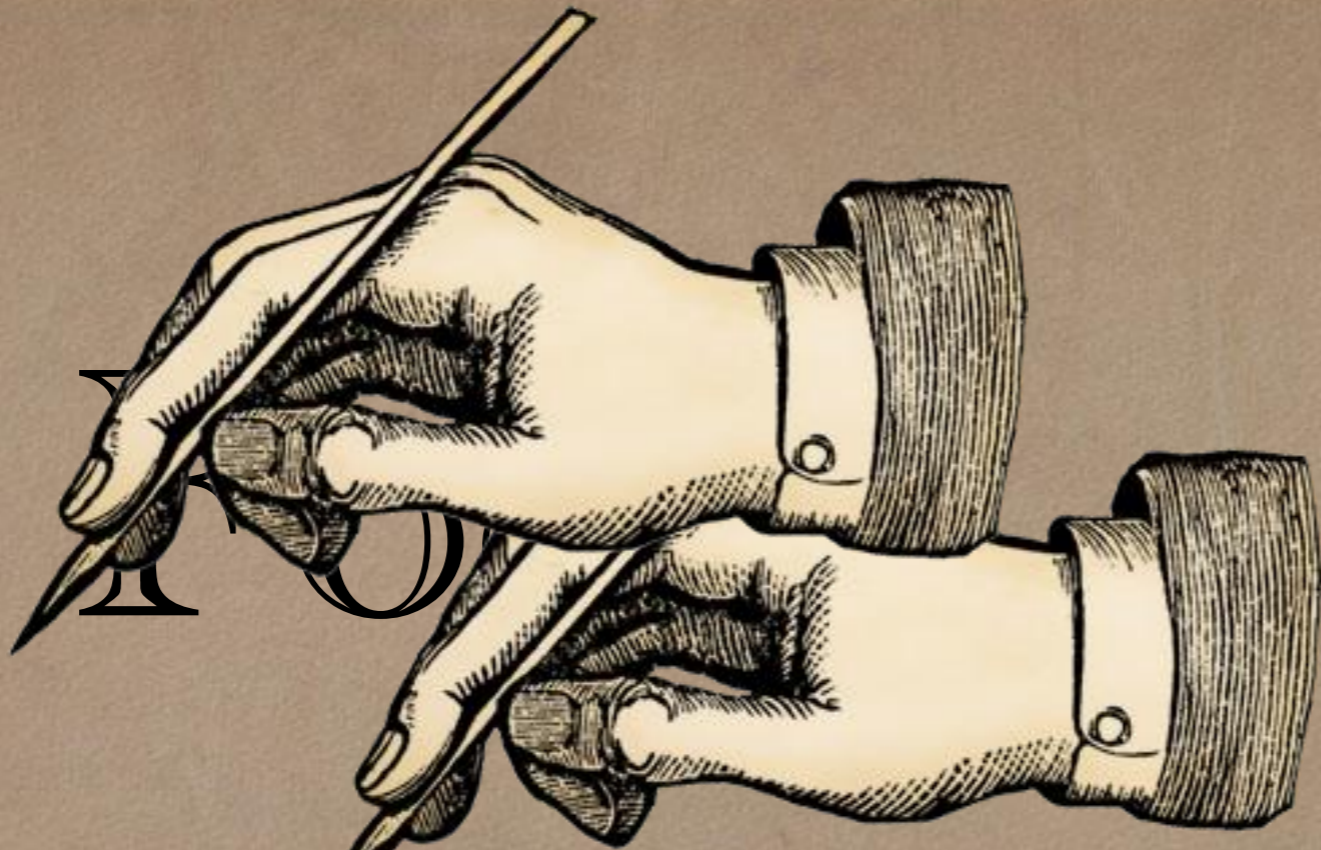




FOX

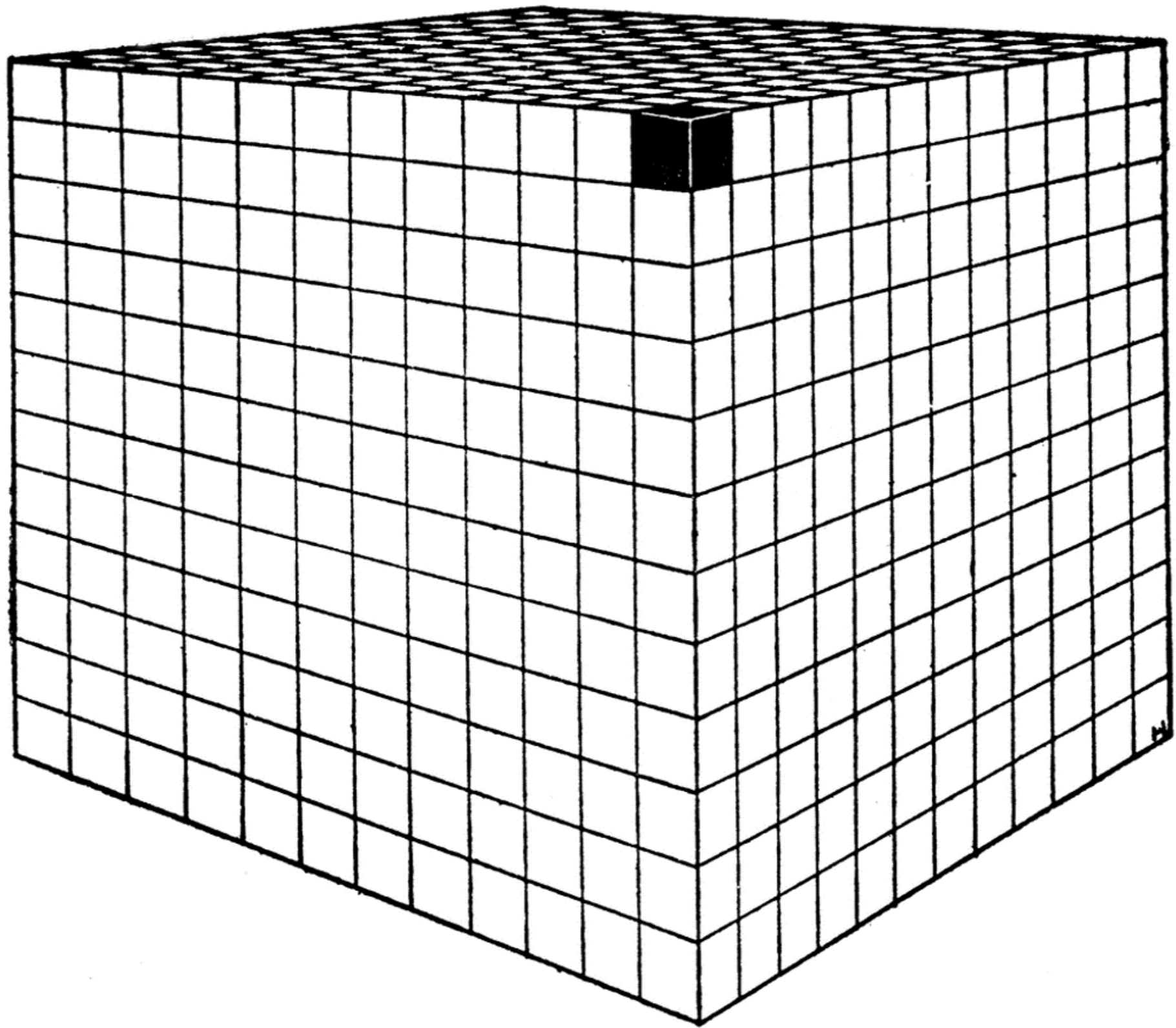


...oyol



• Cohere

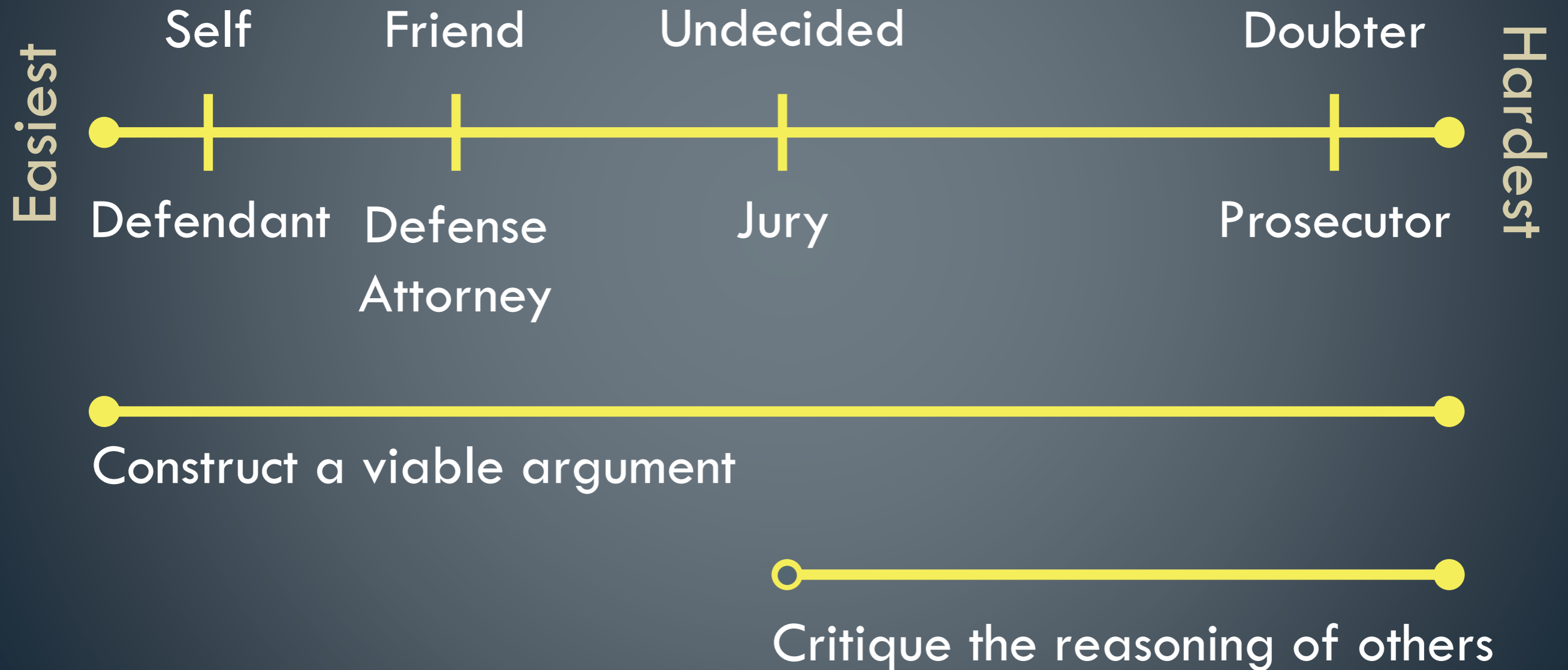
• Rigor



Standards for Mathematical Practice

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.

Levels of Convincing



Inspired by *Connecting Mathematical Ideas* by Jo Boaler and Cathy Humphreys

Standards for Mathematical Practice

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.

The Reality

- Students were uneasy about not having accurate information about the money pile.
- Many students failed to use units.
- Some students' answers were in the low single millions.
- When combined, those two issues made it unclear if their answers represented the quantity of hundred dollar bills or the value of the hundred dollar bills.
- The most challenging part for students was estimating the quantity of bills in a column.

STUDENT WORK

What problem are you trying to figure out?	What guesses do you have?
<p>How much money is this?</p> <p><i>Handwritten notes:</i> $\frac{000}{25} = 000,000$ $\frac{000}{25} = 000,000$</p>	<p>1 billion</p> <p><i>Handwritten notes:</i> $100,000$ $100,000$ $100,000$ $100,000$</p>
What do you already know from the problem?	What do you need to know to solve the problem?
<ul style="list-style-type: none"> The money is between \$1.6 million through \$20 billion. It is illegal money. Happened at different country. 	<ul style="list-style-type: none"> What kind of bills are they? How much money is in one stack?
What is your conclusion? How did you reach that conclusion?	
<p>My conclusion is \$2,805,000. I got my conclusion because I counted 34 rows of money going sideways and 11 going across. Then I multiplied those 2 and got 374. I then multiplied 374×100 and got 37,400. I then took a guess on how much money there was in one money stack (75) and multiplied that by 37,400 and that's how I got \$2,805,000.</p>	

What is your conclusion? How did you reach that conclusion?

My conclusion is \$2,805,000. I got my conclusion because I counted 34 rows of money going sideways and 11 going across. Then I multiplied those 2 and got 374. I then multiplied 374×100 and got 37,400. I then took a guess on how much money there was in one money stack (75) and multiplied that by 37,400 and that is how I got \$2,805,000.

What is your conclusion? How did you reach that conclusion?

My conclusion is that there is about 204 million dollars in currency for the drug bust. I figured it out by figuring out how much is in each stack. There was fifty thousand in each stack. It is 34 stacks wide by 12 stacks length and by 10 stacks high. I multiplied them all and got 204 million.

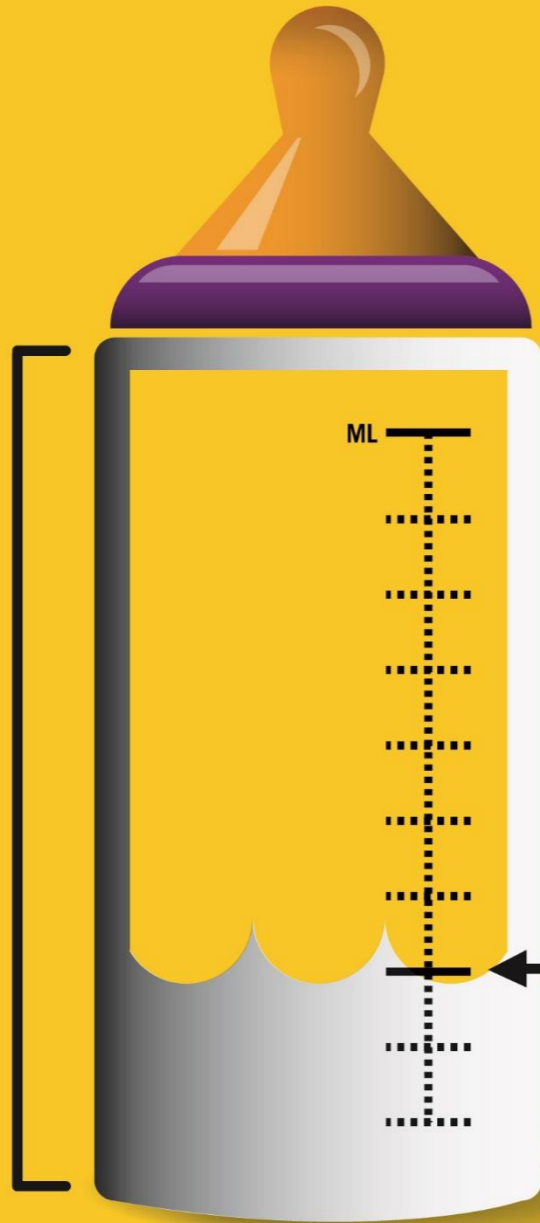
What is your conclusion? How did you reach that conclusion?

My answer was 34 going from across the room, and 12 going up. So what you do is 34 times 12 and you get 408. Then you multiply 408 by 10 because there was 10 stacks going down and you get 4080.

CHOOSE CAR SEAT:
BY AGE & SIZE



THE NUMBER
OF PEOPLE
**WHO
THINK**
THEY HAVE
THEIR CHILD IN
THE RIGHT
SEAT.



THE ONES
**WHO
ACTUALLY
DO.**

KNOW FOR SURE
IF YOUR CHILD IS IN THE RIGHT CAR SEAT.



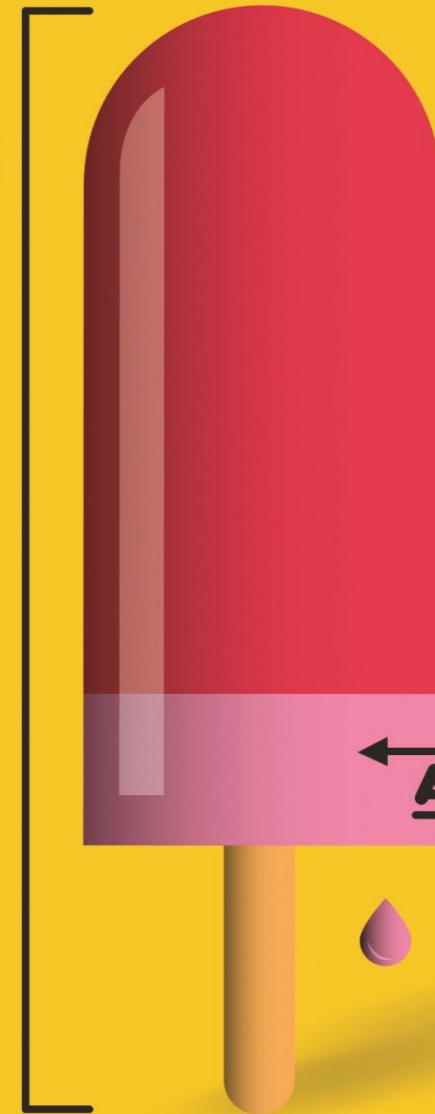
VISIT SAFERCAR.GOV/THERIGHTSEAT



CHOOSE CAR SEAT:
BY AGE & SIZE



THE NUMBER
OF PEOPLE
**WHO
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THEY HAVE
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THE ONES
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VISIT SAFERCAR.GOV/THERIGHTSEAT



There are 125
sheep and 5 dogs
in a flock. How old
is the shepherd?

Of the 32 students I interviewed...

- 75% of them gave me numerical responses
- 2 students calculated the answer to be 130 ($125 + 5$)
- 2 students calculated the answer to be 120 ($125 - 5$)
- 12 students calculated the answer to be 25 ($125 \div 5$)
- 0 students calculated the answer to be 625 (125×5)
- 4 students stated that they guessed their answer (90, 5, 42, and 50)
- 4 students tried to divide 125 by 5 but could not correctly implement the procedure

Takeaways

- Making sense of mathematics
- Intellectual autonomy
 - Intellectual autonomy is about being able to think for yourself and not being dependent on others for the direction and control of one's thinking.

What Does the NHTSA Say?

Key Statistics and Consumer Insights:

- Motor vehicle crashes are the leading cause of death for children age 1 through 12 years old.¹

According to a NHTSA study, 3 out of 4 kids are not as secure in the car as they should be because their car seats are not being used correctly.

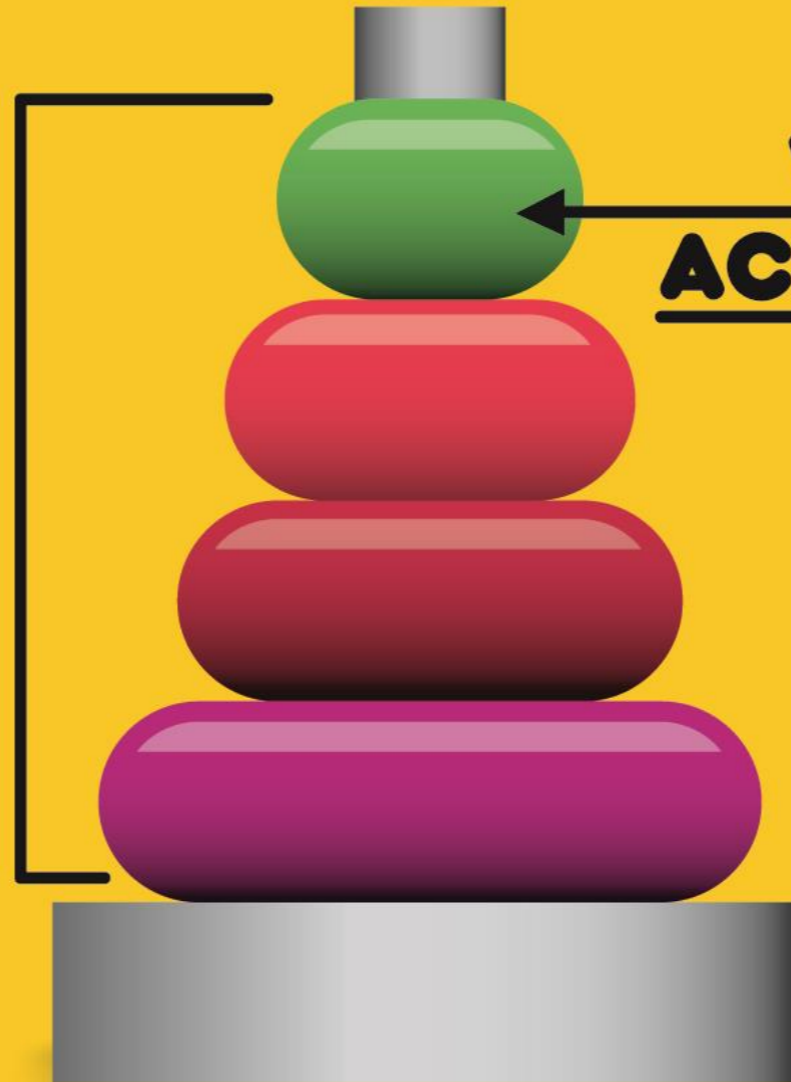
be reduced by about half if the correct child safety seats were always used.

¹ Source: Based on the latest mortality data currently available from the CDC's National Center for Health Statistics.



CHOOSE CAR SEAT:
BY AGE & SIZE

THE NUMBER
OF PEOPLE
**WHO
THINK**
THEY HAVE
THEIR CHILD
IN THE RIGHT
SEAT.



THE ONES
**WHO
ACTUALLY
DO.**

- “because they have their child in the right seat”
- “because their car seats are not being used correctly”

IF YOUR CHILD IS IN THE RIGHT CAR SEAT.



VISIT SAFERCAR.GOV/THERIGHTSEAT



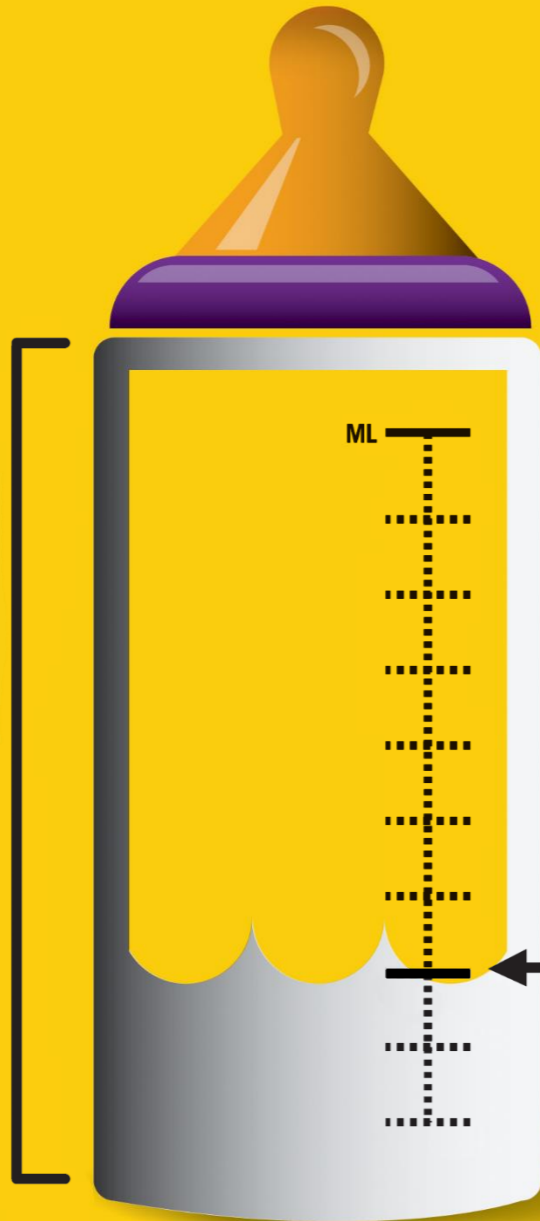
CHOOSE CAR SEAT:
BY AGE & SIZE



THE NUMBER
OF PEOPLE

**WHO
THINK**

THEIR CAR
SEATS ARE
BEING USED
CORRECTLY.



THE ONES
**WHO
ACTUALLY
DO.**

KNOW FOR SURE
IF YOUR CHILD IS IN THE RIGHT CAR SEAT.



VISIT SAFERCAR.GOV/THERIGHTSEAT



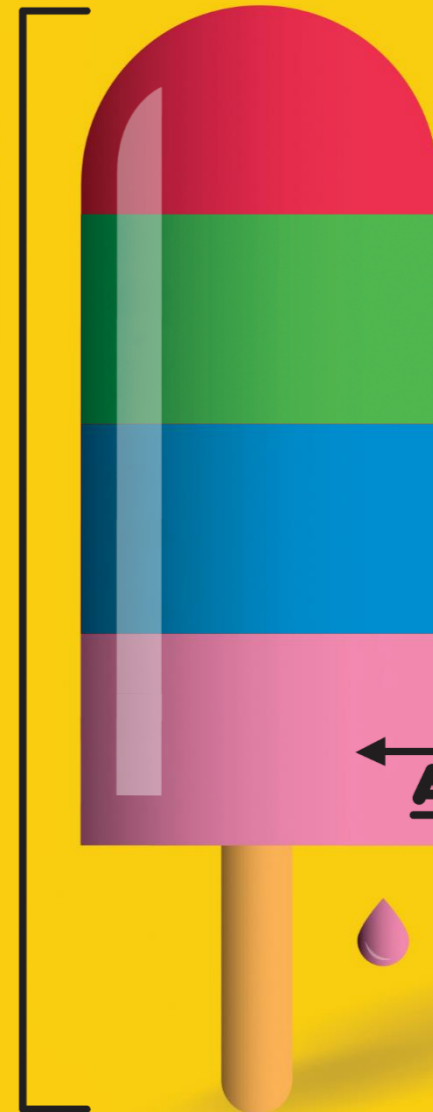
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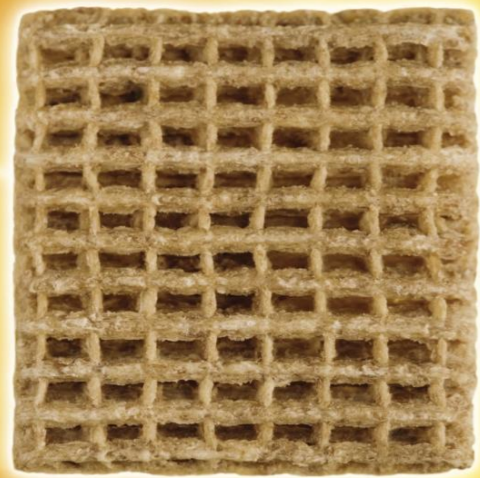
THE ONES
**WHO
ACTUALLY
DO.**

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VISIT SAFERCAR.GOV/THERIGHTSEAT







OLD
(Boring)

NEW
Diamond
Shreddies

Cereal



NEW
(Exciting!)





SQUARE OR DIAMOND?
Vote for your Favourite at DiamondShreddies.com

Post

Diamond

Shreddies
Combo Pack



Square Diamond

ENLARGED TO SHOW TEXTURE

Made with 100% Whole Grain Wheat

620 g Cereal
SERVING SUGGESTION

COR 114

Limited Edition

Sensible Solution
• Very High Source of Fibre
• Good Source of 8 Essential Nutrients
• Low in Fat

“Kraft Foods saw an immediate 18% increase in baseline sales of Shreddies within the first month alone, and for months thereafter.”



discover something new

Coca-Cola

Coca-Cola

PUSH

- FUZE Tea
- Grape
- Vanilla
- Sprite ZERO
- Minute Maid LEMONADE
- POWERADE Strawberry
- Cherry Vanilla
- Raspberry
- Vanilla
- Raspberry Lime
- Orange
- Vanilla
- Cherry Vanilla
- Raspberry





no caffeine



no caffeine



no caffeine



no caffeine



no caffeine



no caffeine



low/no calories



no caffeine



no caffeine



no caffeine



no caffeine



no caffeine



no caffeine



no caffeine



no caffeine



no caffeine

The main attraction for a busload of Dover fifth-graders was supposed to be the Museum of Fine Arts, but that all changed when they stopped by Kelly's Roast Beef and got a glimpse of their soda-drinking future.

At the entrance of Kelly's sat a sleek **Coca-Cola** Freestyle fountain crafted to resemble an old-fashioned vending machine, but with a twist: a touchscreen computer embedded in the machine gives customers the option of **125 flavors**. You can quench your thirst with a Coke or a Sprite, or try something more exotic — Sprite with Grape or a Hi-C Orange Vanilla.



Complicated
or Complex?



Cookie Monster Cupcakes



Nailed it

method

1. Using an electric mixer, whip the butter until it is pale. This will take at least 5 minutes on high.
2. Gradually add in the icing mixture and vanilla until well combined.
3. With the mixer running, add in food colouring until you get to the Cookie Monster colour. This may be a lot if you are using liquid food colouring or a little if using gel food colouring.
4. Add in the milk and mix until the frosting puffs up.
5. Fill a piping bag with a fluted nozzle and pipe on icing.
6. With the writing icing, place black spots on the marshmallows for pupils.
7. Place on each cupcake.
8. Cut cookies in half and place in 'mouth'.

CUBES

A problem solving strategy

C - Circle the #s

U - underline the ques.

B - box the words

Content and Language Objectives using

Content Objective Example:

SWBAT apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. (MP4)

Language Objective Example:

SWBAT understand and use stated assumptions, definitions, and previously established results in constructing arguments. (MP3)

example:

- In early grades, this might be as simple as writing an addition equation to describe a situation. (MP4)
- In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. (MP4)
- By high school, a student might use geometry to solve a design problem or use a function to describe how one

Problem-Based Lesson Resources

- Problem-based lesson search engine: <http://robertkaplinsky.com/prbl-search-engine/>
- My lessons: <http://www.robertkaplinsky.com/lessons>
- Dan Meyer: <http://threeacts.mrmeyer.com>
- Andrew Stadel: <http://tinyurl.com/mrstadel>
- Graham Fletcher: <http://gfletchy.com/3-act-lessons/>
- Geoff Krall: <http://tinyurl.com/PrBLmaps>
- Dan Meyer's TED talk: <http://tinyurl.com/meyer-TED>



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How I Can Help You



[Real World Problems](#)

My workshops help teachers implement [problem-based lessons](#) by helping them experience them from both student and teacher perspective, leading to



[Depth of Knowledge](#)

Problems at higher depth of knowledge levels have the potential to challenge the most gifted students yet remain accessible to struggling students. I can help teachers

What People Are Saying

Robert was a dynamic trainer who presented information in an unassuming, learner-centered way, allowing teacher participants to think about their own teaching and apply the new strategies accordingly. Throughout the two days, Robert modeled sound instructional strategies as he explained the why, the what, and the how of implementing this approach to math instruction. He

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- [Geo](#)
- [Alg 2](#)



[How Many Chip Bags Will There Be?](#)



[How Can We Make Stronger Passwords?](#)

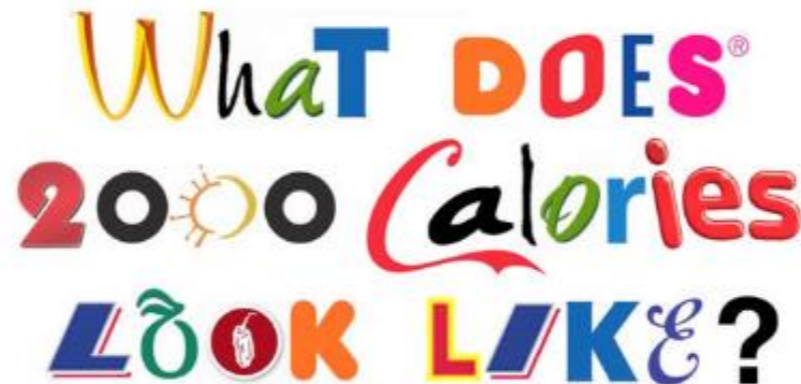
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Robert Kaplinsky's Problem-Based Lessons



File Edit View Insert Format Data Tools Add-ons Help

View only

	A	B	C	D	
1	Lesson	Concept / Skill	Standard 1	Standard 2	Standard 3
2	How Many Chip Bags Will There Be?	Ratio and Proportions, Population Sampling	6.RP.3	6.RP.3c	7.RP.3
3	How Can We Make Stronger Passwords?	Permutations, Combinations, Probability, Exponents, Exponential Growth	7.SP.8	8.EE.1	S-MD.1
4	How Many Hot Dogs And Buns Should He Buy?	Least Common Multiple (LCM)	6.NS.4		
5	What Does 2000 Calories Look Like?	Unit Rates, Ratios, Solving Equations, and Solving Inequalities	6.EE.3	6.EE.4	6.EE.5
6	How Much Money Are The Coins Worth?	Decimal Operations and Coin Counting	2.MD.8	5.NBT.7	6.NS.3
7	How Many Times Will A Case of Paper Jam?	Interpreting Percentages	6.RP.3c	7.RP.3	
8	How Many Soda Combinations Are There On A Coke Freestyle?	Counting, Composing, and Decomposing Numbers	K.CC.5	K.CC.6	K.OA.1
9	What Should The Freeway Sign Show?	Fractions on Number Lines, Converting Units, Decimal and Fraction Operations	3.NF.1	3.NF.2	3.NF.3
10	How Fast Was The Fastest Motorcycle Speeding Ticket Ever?	Converting Units and Unit Rates	5.MD.1	6.RP.3d	7.RP.3
11	How Much Did Patrick Peterson Lose By Not Cashing His Check?	Compound and/or Simple Interest	7.RP.3	N-RN.2	A-SS.1
12	How Many Biscuits Can You Make?	Dividing Fractions and Mixed Numbers	5.NF.7	5.NF.7a	5.NF.7b
13	How Much Bigger Should They Make Zoolander's School?	Scale and Proportions	5.NF.5A	7.RP.2	7.G.1
14	Where Is The Freeway Sign Located?	Identifying Fractions on a Number Line	3.NF.1	3.NF.2	3.NF.3
15	How Far Apart Are Exits On A Ring Road?	Arc length measures	G-C.5		
16	How Much Is One Third Of A Cup Of Butter?	Identifying Fractions on a Number Line	3.NF.1	3.NF.2	3.NF.3
17	How Do Skytypers Write Messages?	Transformations (Rotations, Reflections, Dilations, and Translations)	8.G.1	8.G.2	8.G.3
18	How Big Is The Bermuda Triangle?	Coordinate Geometry: Area of Triangle	G-GPE.7		
19	What Fraction Of Children Are In The Right Car Seat?	Representing and Comparing Fractions	3.NF.1	3.NF.2	3.NF.3
20	How Much Did The Temperature Drop?	Absolute Value	6.NS.7c	7.NS.1c	
21	How Much Shorter Are Staggered Pipe Stacks?	Circles, Pythagorean Theorem, trigonometric ratios, and linear functions	8.G.7	A-CED.1	A-CE.1
22	How Do You Write A Check To Pay For Something?	Expanded Form	2.NBT.3	4.NBT.2	5.NB.1
23	How Can We Correct The Scarecrow?	Pythagorean Theorem	8.G.6	G-SRT.4	
24	How Much Does A 100x100 In-N-Out Cheeseburger Cost?	Building and Interpreting Linear Functions	8.F.1	8.F.3	8.F.4
25	How Can We Water All Of The Grass?	Circles, Pythagorean Theorem, trigonometric ratios	7.G.4	8.G.7	G-SP.1
26	How Much Money IS That?!	Volume of rectangular prism	5.MD.3	5.MD.4	5.MD.5
27	How Much Money Should Dr. Evil Demand?	Exponential Growth	N-RN.2	A-SSE.1	A-SS.1
28	How Tall Is Mini-Me?	Scale and Dividing Decimals	5.NF.5	5.NF.5a	5.NF.5b
29	How Did They Make Ms. Pac-Man?	Transformations (Rotations, Reflections, and Translations)	8.G.1	8.G.2	8.G.3
30	Which Ticket Option Is The Best Deal?	Unit Rates and Ratios	6.RP.2	6.RP.3	6.RP.3
31	How Far Apart Are The Freeway Exits?	Fractions on a Number Line and Subtracting Fractions	3.NF.2	3.NF.2b	4.NF.1
32	Do We Have Enough Paint?	Area	3.MD.5	3.MD.6	3.MD.7
33	How Many Stars Are There In The Universe?	Scientific Notation	8.EE.3	8.EE.4	
34	What Rides Can You Go On?	Inequalities and Measurement	2.MD.1	6.NS.7a	6.NS.7b
35	Do You Have Enough Money?	Money	2.MD.8		
36	Which Bed Bath & Beyond Coupon Should You Use?	Percent Discount	7.RP.3		
37	Is Gas Cheaper With Cash Or Credit Card?	Percent Discount	7.RP.3		
38	Where's The Nearest Toys R Us?	Pythagorean Theorem (Distance in coordinate system)	8.G.8	G-SRT.8	G-GE.1

Contact

Robert Kaplinsky



robert@robertkaplinsky.com



robertkaplinsky.com/vesd



[@robertkaplinsky](https://twitter.com/robertkaplinsky)



Victor Elementary School District

ROBERT KAPLINSKY

   @robertkaplinsky





COMMON CORE

STATE STANDARDS INITIATIVE

CCSS.MATH.CONTENT.4.MD.A.3

Apply the area and perimeter formulas for rectangles in real world and mathematical problems.

meet the...
equal intensity, the...
of each grade: conceptual...
skills and fluency, and application.

What is the perimeter
of a rectangle that
measures 8 units by 4
units?

Components of Rigor

Procedural Skill and Fluency

Conceptual Understanding

List the dimensions of
a rectangle with a
perimeter of 24 units.



Components of Rigor

Procedural Skill and Fluency

Conceptual Understanding

WHY?



Components of Rigor

Procedural Skill and Fluency

Conceptual Understanding

List the
of a rectangle with a
perimeter of 24
units.



Components of Rigor

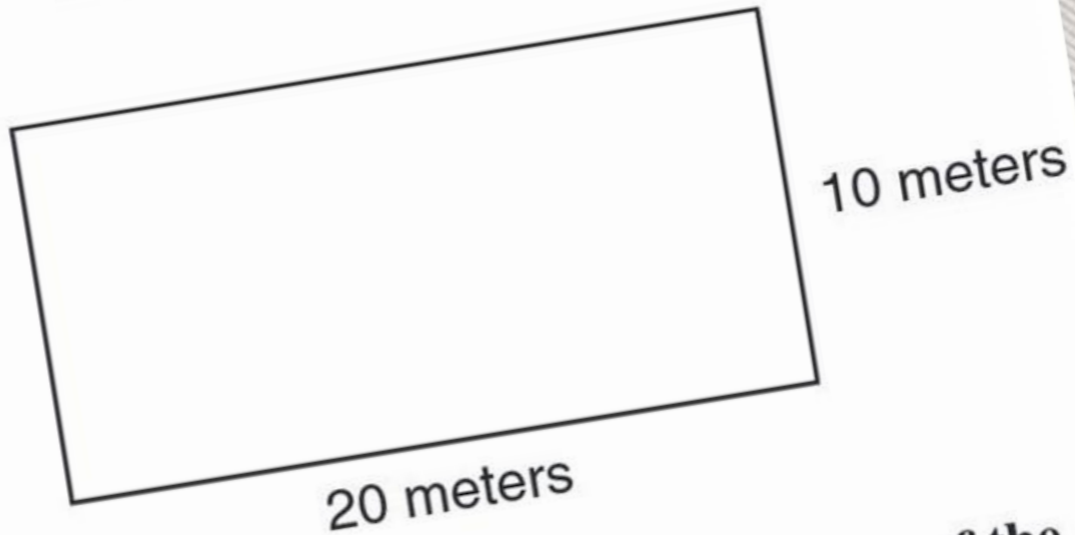
Procedural Skill and Fluency

Conceptual Understanding



71

A basketball court is shaped like a rectangle 20 meters long and 10 meters wide.



What is the perimeter in meters of the court?

- A 30 meters
- B 50 meters
- C 60 meters
- D 200 meters

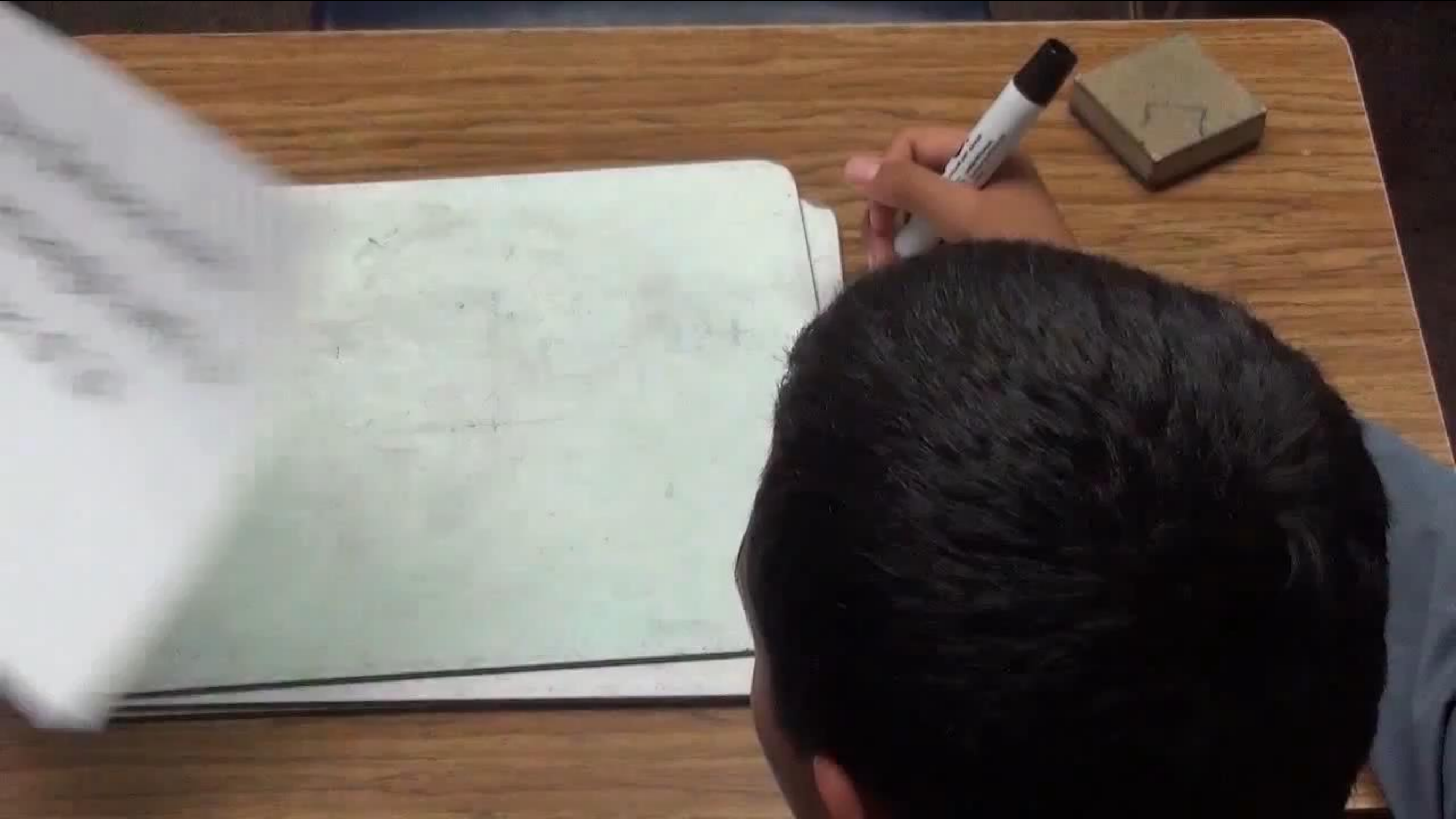
What is the perimeter
of a rectangle ~~with~~
that measures 8 units
by 4 units?



Components of Rigor

Procedural Skill and Fluency

Conceptual Understanding



Components of Rigor

Procedural Skill and Fluency

Conceptual Understanding

Of all the rectangles with a perimeter of 24 units, which one has the most area?

Of all the rectangles
with a perimeter of
24 units, which one
has the most area?

00:00:00:00

Components of Rigor

Procedural Skill and Fluency


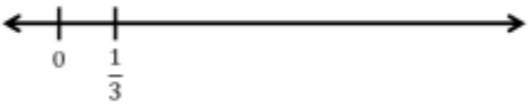
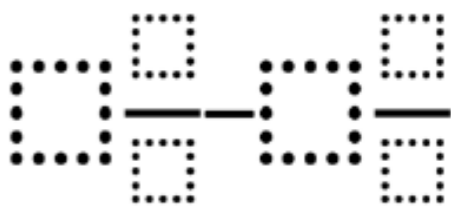
Conceptual Understanding

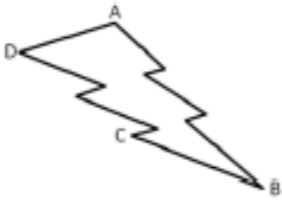
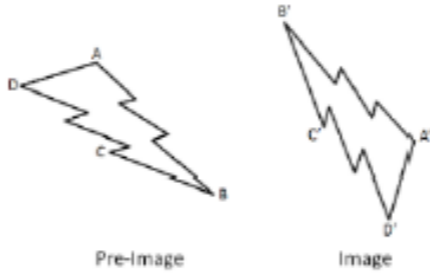
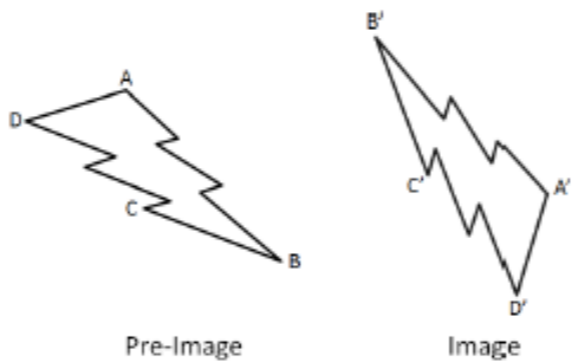
Defining the Problem

- ▶ Students appear to demonstrate “deep, authentic command of mathematical concepts” when given commonly used problems.
- ▶ However with more challenging problems, the same students seem to no longer demonstrate that command.

Addressing the Problem

- ▶ First, we must have a clear understanding about why these problems are different from one another.
- ▶ Next, we need to practice using these problems so that we understand how students may react to them.
- ▶ Last, we need a source that can provide us with a variety of free problems.

Topic	Adding Whole Numbers	Money	Fractions on a Number Line	Area and Perimeter	Subtracting Mixed Numbers
CCSS Standard(s)	<ul style="list-style-type: none"> 1.NBT.4 2.NBT.5 	<ul style="list-style-type: none"> 2.MD.8 	<ul style="list-style-type: none"> 3.NF.2 	<ul style="list-style-type: none"> 3.MD.8 4.MD.3 	<ul style="list-style-type: none"> 5.NF.1
DOK 1 Example	Find the sum. $44 + 27 =$	If you have 2 dimes and 3 pennies, how many cents do you have	Which point is located at $\frac{7}{12}$ below? 	Find the perimeter of a rectangle that measures 4 units by 8 units.	Find the difference. $5\frac{1}{2} - 4\frac{2}{3} =$
DOK 2 Example	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. $\square\square + 53 = \square\square$	Make 47¢ in three different ways with either quarters, dimes, nickels, or pennies.	Label the point where $\frac{3}{4}$ belongs on the number line below. Be as precise as possible. 	List the measurements of three different rectangles that each has a perimeter of 20 units.	Create three different mixed numbers that will make the equation true by using the whole numbers 1 through 9, no more than one time each. You may reuse the same whole numbers for each of the three mixed numbers. $5\frac{4}{5} - \square\square = 3\frac{1}{20}$
DOK 3 Example	Make the largest sum by filling in the boxes below using the whole numbers 1 through 9, no more than one time each. $\square\square + \square\square =$	Make 47¢ using exactly 6 coins with either quarters, dimes, nickels, or pennies.	Create 5 fractions using the whole numbers 0 through 9, exactly one time each as numerators and denominators, and place them all on a number line.	What is the greatest area you can make with a rectangle that has a perimeter of 24 units?	Make the smallest difference by filling in the boxes below using the whole numbers 1 through 9, no more than one time each. 

Topic	Surface Area and Volume	Probability	Transformations	Factoring Quadratics	Quadratics in Vertex Form
CCSS Standard(s)	<ul style="list-style-type: none"> 6.G.4 7.G.6 	<ul style="list-style-type: none"> 7.SP.5 7.SP.7 	<ul style="list-style-type: none"> 8.G.1 G-CO.5 	<ul style="list-style-type: none"> A-SSE.3a 	<ul style="list-style-type: none"> F-IF.7a
DOK 1 Example	Find the surface area of a rectangular prism that measures 3 units by 4 units by 5 units.	What is the probability of rolling a sum of 5 using two 6-sided dice?	Rotate the image below 90° counterclockwise about point D and reflect it across a horizontal line. 	Find the factors: $2x^2 + 7x + 3$	Find the roots and maximum of the quadratic equation below. $y = -3(x - 4)^2 - 3$
DOK 2 Example	List the measurements of three different rectangular prisms that each have a surface area of 20 square units.	What value(s) have a 1/12 probability of being rolled as the sum of two 6-sided dice?	List three sequences of transformations that take pre-image ABCD to image A'B'C'D'. 	Fill in the blank with integers so that the quadratic expression is factorable. $x^2 + __x + 4$	Create three equations for quadratics in vertex form that have roots at 3 and 5 but have different maximum and/or minimum values.
DOK 3 Example	What is the greatest volume you can make with a rectangular prism that has a surface area of 20 square units?	Fill in the blanks to complete this sentence using the whole numbers 1 through 9, no more than one time each. Rolling a sum of $__$ on two $__$ -sided dice is the same probability as rolling a sum of $__$ on two $__$ -sided dice.	What is the fewest number of transformations needed to take pre-image ABCD to image A'B'C'D'? 	Fill the blank by finding the largest and smallest integers that will make the quadratic expression factorable. $2x^2 + 3x + __$	Create a quadratic equation with the largest maximum value using the whole numbers 1 through 9, no more than one time each. $y = -\square(x - \square)^2 + \square$



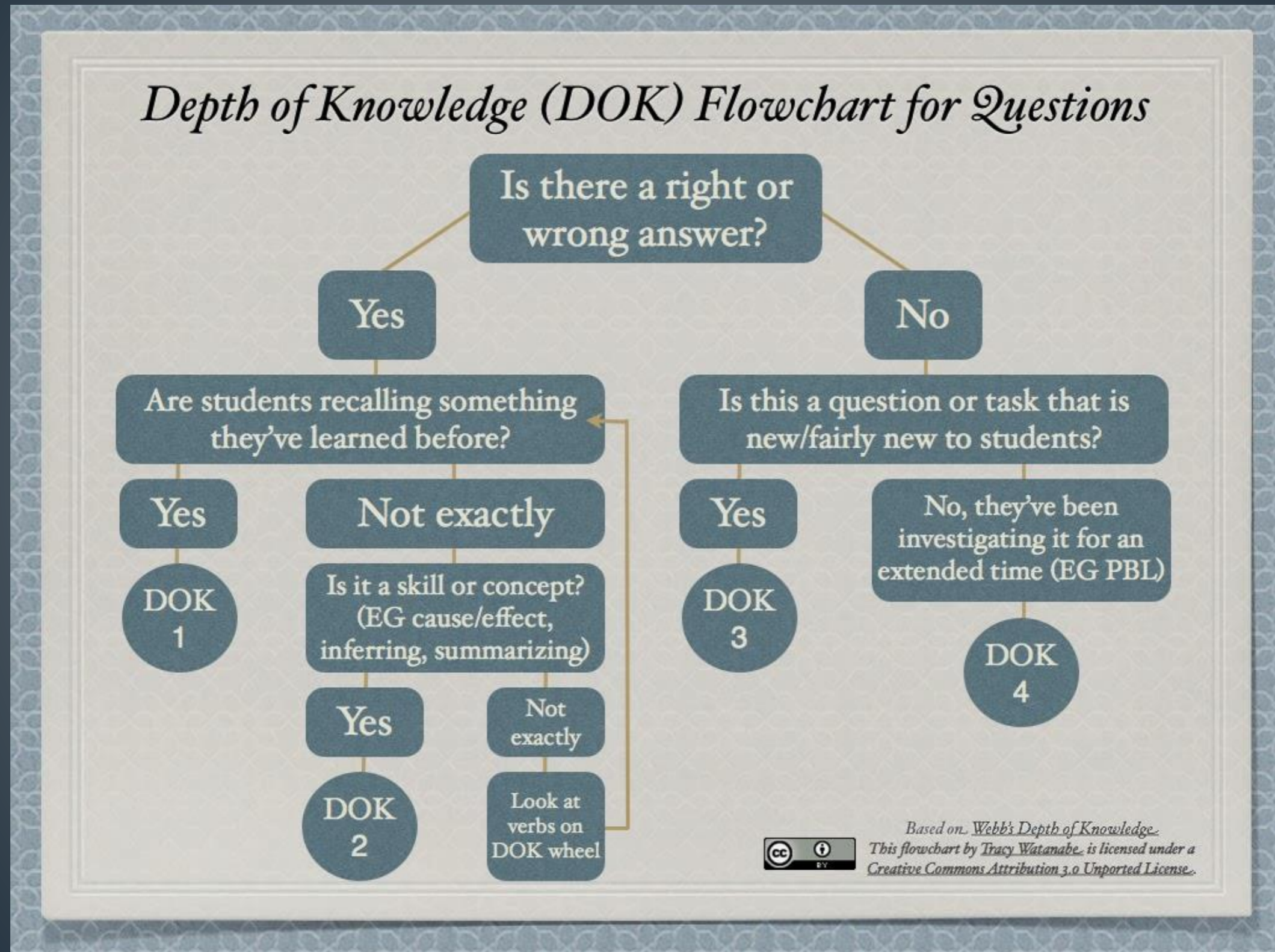
Complicated
or Complex?

DOK Verb Wheel



Source: Unknown

DOK Flowchart for Questions



DOK Posters

DOK 1

Routine Thinking

- Can you recall ___?
- Can you identify ___?
- How would you describe ___?
- What might you include on a list about ___?
- Can you select ___?
- How can you find the meaning of ___?

arrange calculate memorize
measure name recognize
recall repeat identify
illustrate match label
state list state

DOK 2

Conceptual Thinking

- Can you explain how ___ affected ___?
- How would you apply what you learned to develop ___?
- How would you summarize ___?
- What do you notice about ___?
- How would you estimate ___?
- How could you organize ___?

compare classify categorize
measure graph distinguish
predict modify construct
organize infer summarize
interpret make observations

DOK 3

Strategic Reasoning

- How is ___ related to ___?
- What conclusions can be drawn?
- Can you elaborate on ___?
- How would you test ___?
- What evidence supports ___?
- What would happen if ___?
- Why is that the best answer?

assess compare construct
appraise revise hypothesize
critique investigate
draw conclusions
develop a logical argument

DOK 4

Extended Reasoning

- Write a research paper.
- What information can you gather to support your idea about ___?
- Write a thesis, drawing conclusions from multiple sources.
- Apply information from one text to another to develop an persuasive argument.

design connect prove
analyze critique synthesize
create apply concepts

DOK Level Differences



▶ **Level 1: Recall & Reproduction**

- ▶ Often a trivial application of facts.
- ▶ Generally requires little to no cognitive effort beyond remembering the right formula.
- ▶ Usually only one answer.

▶ **Level 2: Skills & Concepts**

- ▶ Usually requires more than one step to solve.
- ▶ Often multiple answers.

▶ **Level 3: Strategic Thinking**

- ▶ Usually requires critical thinking about the best way to approach a problem.
- ▶ May be multiple answers or a single optimal answer.
- ▶ Often challenging enough to make your head hurt.

▶ **Level 4: Extended Thinking**

- ▶ In mathematics these are generally represented by performance tasks or problem-based lessons.

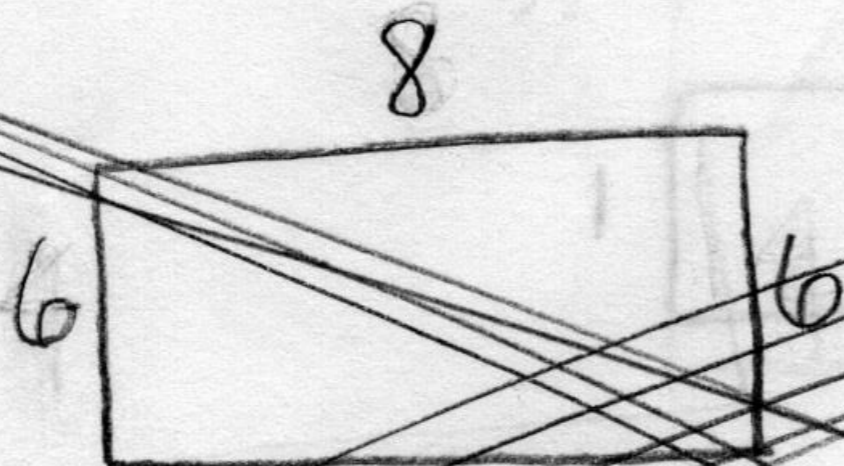
Adding Decimals

Use the numbers 1 through 9, exactly one time each, to fill in the boxes and make three decimals whose sum is as close to 1 as possible.

$$\begin{array}{r} 0.\square\square\square \\ 0.\square\square\square \\ + 0.\square\square\square \\ \hline \end{array}$$

First attempt:

Points: ___/2 attempt ___/2 explanation



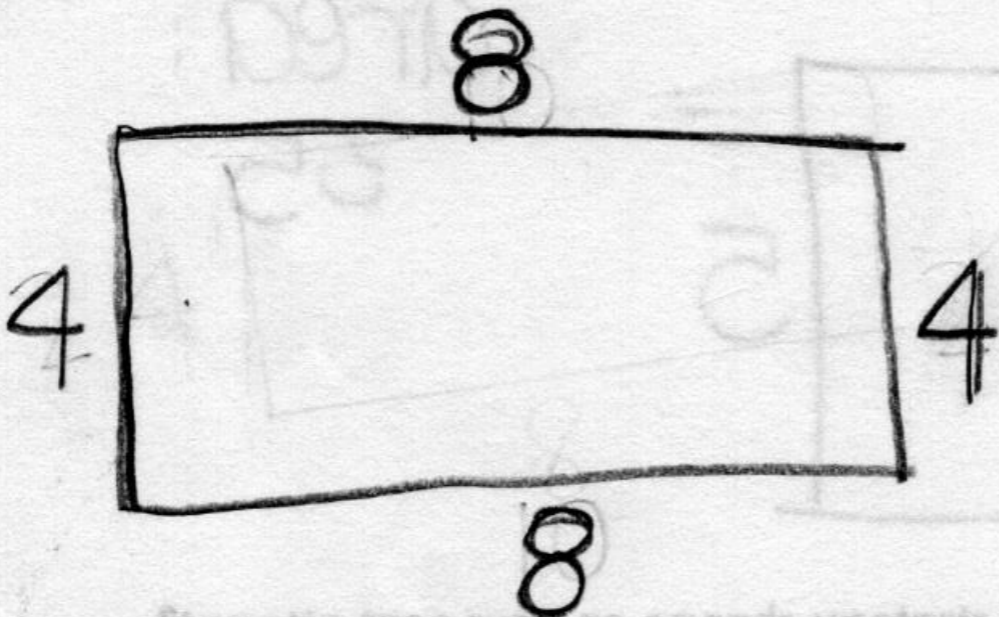
area:
48

What did you learn from this attempt? How will your strategy change on your next attempt?

~~This attempt doesn't equal 24.~~

Second attempt:

Points: ___/2 attempt ___/2 explanation



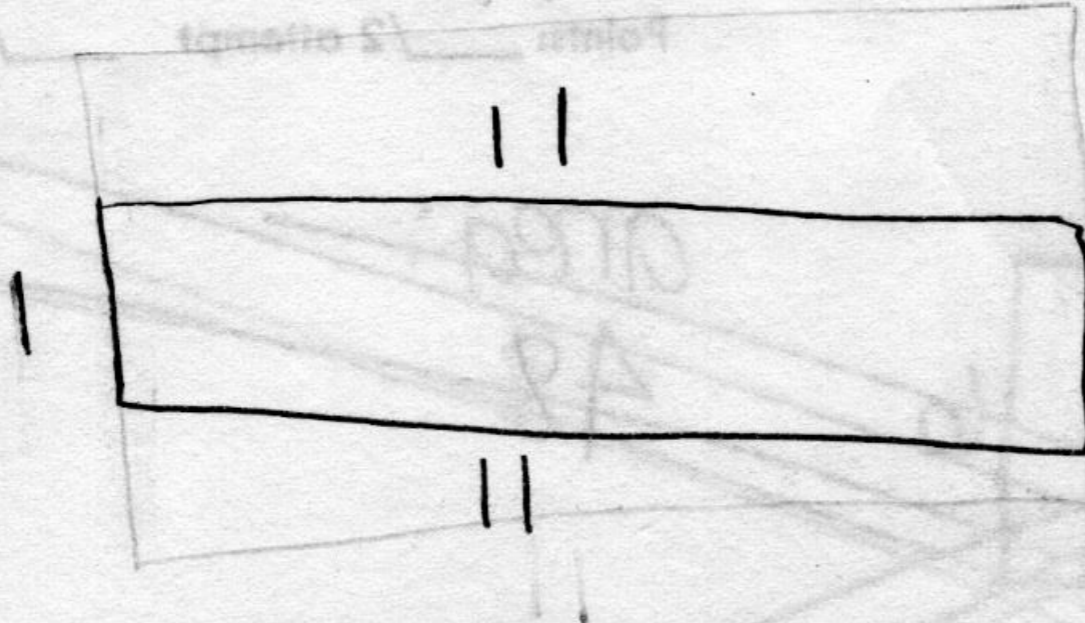
area:
32

What did you learn from this attempt? How will your strategy change on your next attempt?

The perimeter was 24, and the area was 32
but I think there's a blader #

Fourth attempt:

Points: ___/2 attempt ___/2 explanation

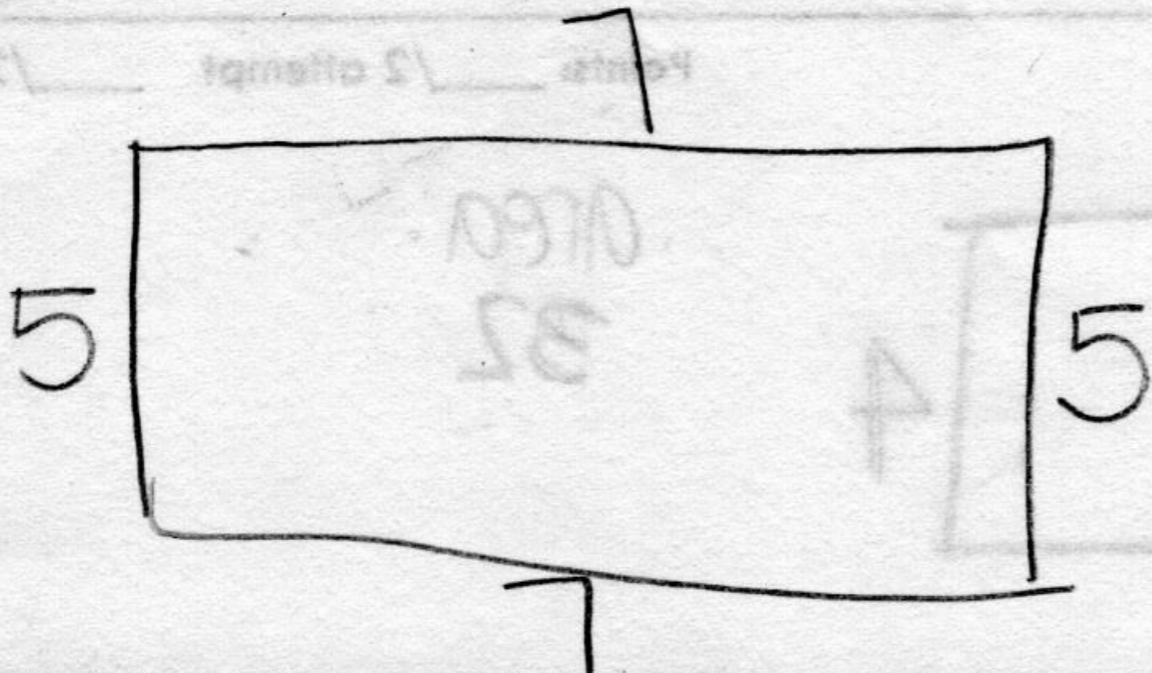


What did you learn from this attempt? How will your strategy change on your next attempt?

The perimeter is 24, but the area is 11 and attempt #2 the area is 32
Strategy: Use #'s with more than one row.

Fifth attempt:

Points: ___/2 attempt ___/2 explanation



area:
35

What did you learn from this attempt? How will your strategy change on your next attempt?

DOK FAQ

- *When will students ever use this?*
- *What DOK level should I start students off with?*
- *How do teachers fit these problems into their pacing?*
- *How do I help prevent students from giving up after trying the problem once or twice?*
- *Where can I find other DOK 2 and DOK 3 problems or submit ones I've made?*

NEW OPEN MIDDLE



Exponents and Order of Operations

February 10, 2015 Leave a comment

Directions: Find 3 positive integers that add up to 10. Place each number into one of the blanks to find the largest possible result. Source: Zack Miller (@zmill415) [Read More »](#)

Create Squares

February 10, 2015 2 Comments

Directions: Create a square with one of the vertices at (2,3). Fill in the blanks with whole numbers 0 through 9, using each number at most once, to show the rest of the vertices of the square. Bonus: Find more than one set of vertices. Source: John Mahlstedt (@jdmahlstedt) [Read More »](#)

Solution of Two Linear Equations

February 10, 2015 Leave a comment

Directions: Using the Integers 0-9 (without duplication), provide four sets of points that represent two distinct lines. These lines can be written as two linear equations. Then provide a fifth point that represents the intersection (or solution) of those equations. Line 1: (_ , _) and (_ , _) Line 2: (_ , _) and (_ , _) Solution (_ , _) Source: Bryan Anderson [Read More »](#)

Bingo card

February 5, 2015 1 Comment

Directions: In a standard game of BINGO, the cards are labeled with numbers 1 through 75. If it was possible, which card would you choose: a card with all of the same number or a standard bingo card? Source: Nanette

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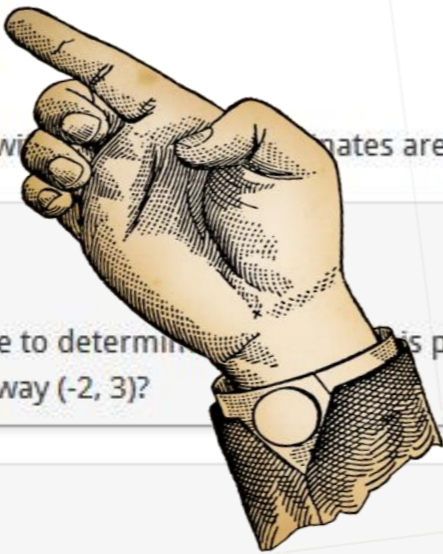
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COMMON CORE STATE STANDARDS

- Grade 1 (6)
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 - Operations & Algebraic Thinking (3)
- Grade 2 (6)
 - Measurement & Data (2)
 - Number & Operations in Base Ten (4)
- Grade 3 (11)
 - Measurement & Data (6)
 - Number & Operations in Base Ten (3)
 - Number & Operations—Fractions (2)

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EQUIDISTANT POINTS



Directions: How many points with integer coordinates are 5 units away from $(-2, 3)$?

Hint

Which methods are available to determine the answer to this problem? What shape is defined by *all* of the points that are 5 units away $(-2, 3)$?

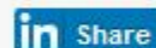
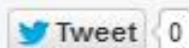
Answer

12 points: $(-5, 7)$, $(-7, 3)$, $(-5, -1)$, $(-2, -2)$, $(3, 3)$, $(1, -1)$, $(-2, 8)$, $(1, 7)$, $(2, 6)$, $(-6, -6)$, $(-6, 0)$, and $(2, 0)$

Source: [Dylan Kane](#)



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Contact

Robert Kaplinsky



robert@robertkaplinsky.com



robertkaplinsky.com/vesd



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