

Tap Into Teen Minds at:

2014 edtechteacher
SUMMIT CHICAGO

Kyle Pearce

tapintoteenminds.com/ettipad



kyle.pearce@outlook.com



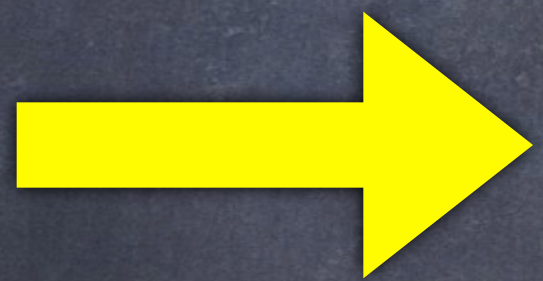
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@MathletePearce

#ettsummit

RESOURCES



RESOURCES

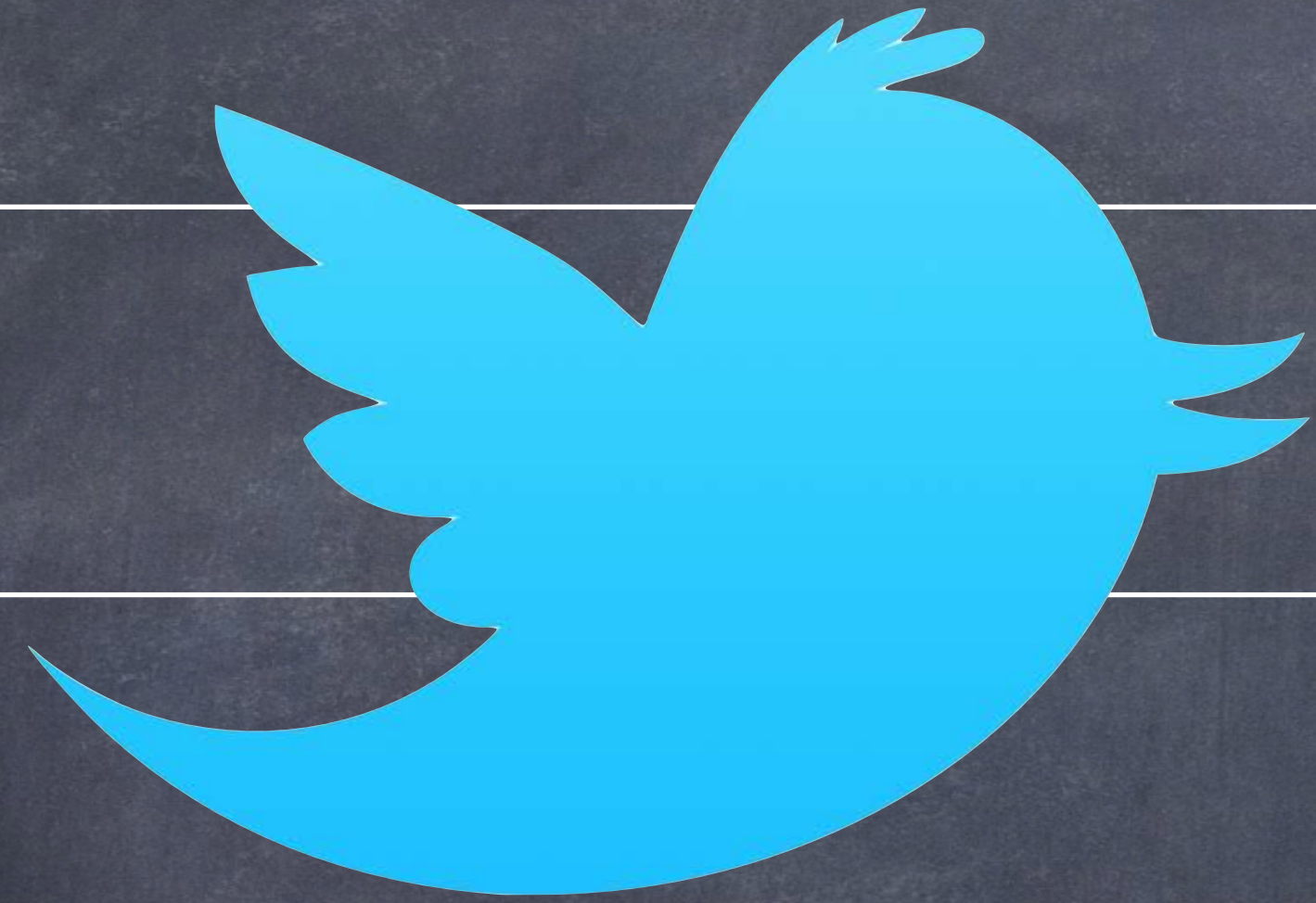
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ettsummit.org/sessions

[#ettsummit](https://twitter.com/ettsummit)

QUESTIONS DURING SESSION?



TWEET IT!

TWEET YOUR QUESTION AND MENTION:

@MathletePearce

...and I'll do my best to answer during the session!

ABOUT ME

- Windsor, ON
- Math Teacher / Math Coach
- Apple Distinguished Educator
- Apple Authorized Trainer



Search bar with magnifying glass icon

Traffic, Bicycling, Directions



Map

Map navigation controls including a compass, a street view pegman, a settings gear, a person icon, a color palette, and a vertical stack of zoom in (+) and zoom out (-) buttons.

Theory of Action

Effective Teaching Practice

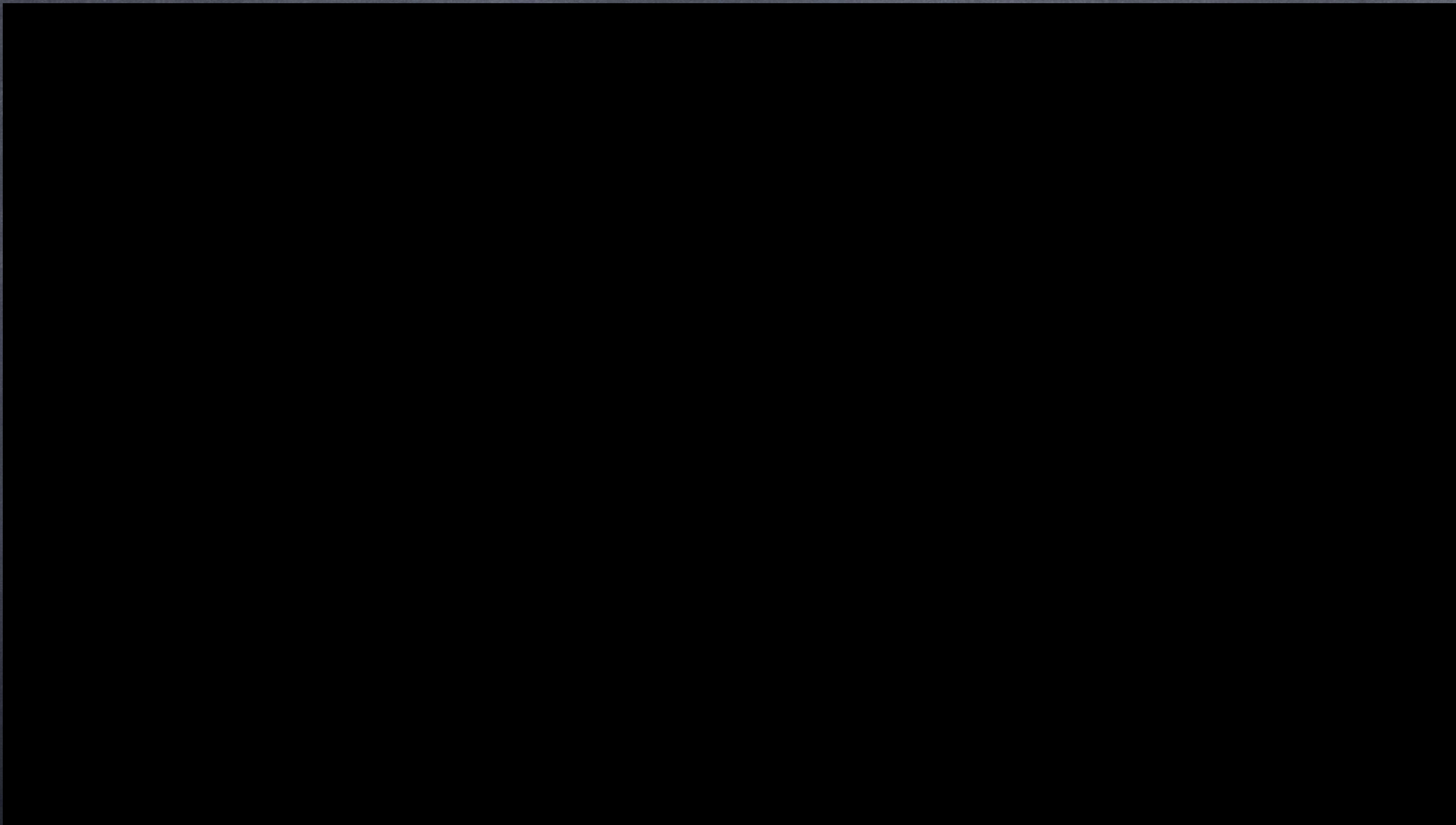


Transformational Technology Use

Increased Student Success



Struggling Students



Redefining Mathematics Education

- 30 iPads
- Projector
- Apple TV



Project made possible by:

Teacher Learning and Leadership Program for
EXPERIENCED TEACHERS



4-Part Math Lesson

1. Minds On

2. Inquiry

3. Connections

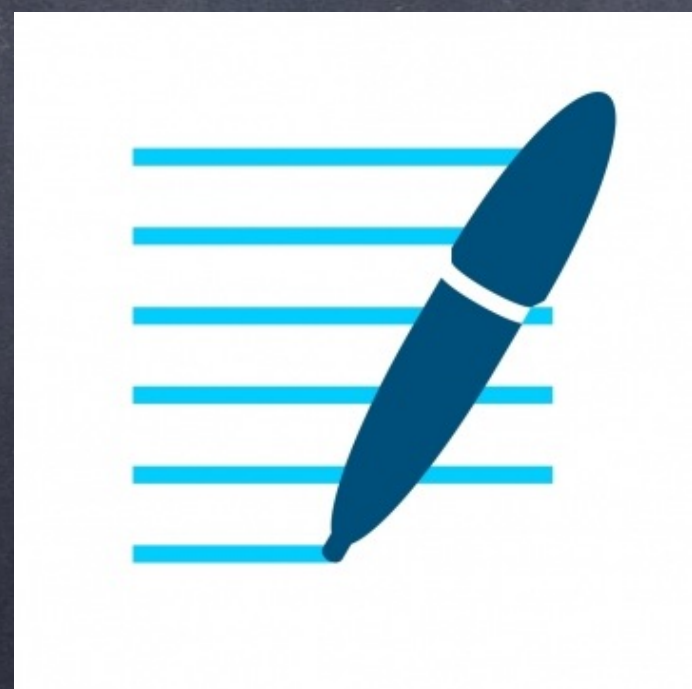
4. Consolidate



Workflow



Workflow



4-Part Math Lesson

1. Minds On

2. Inquiry

3. Connections

4. Consolidate



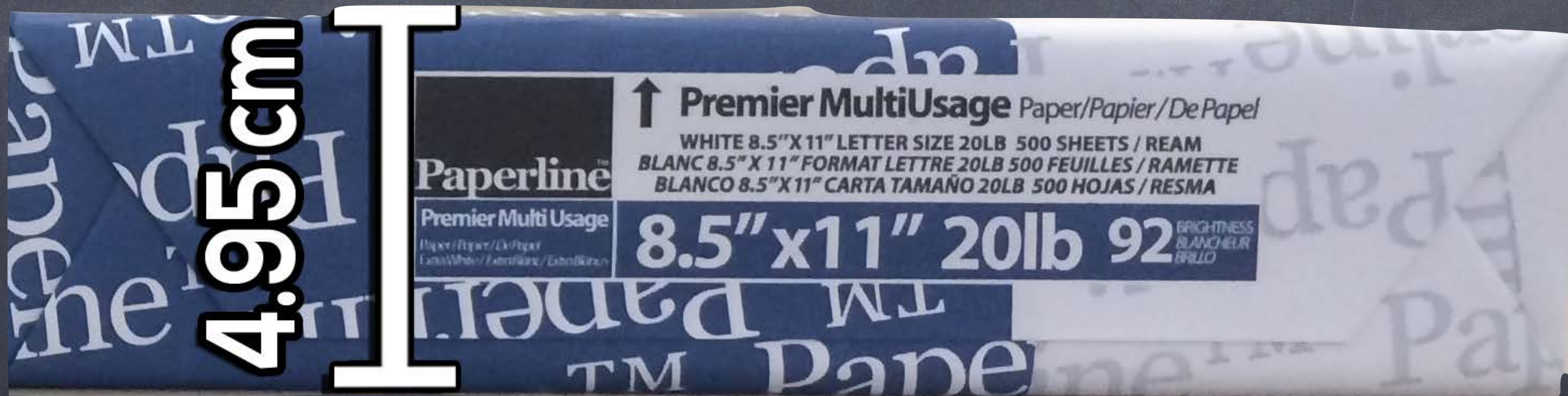
1. Minds On



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1. Minds On



1. Minds On



How many 'thick' packs of paper would it take to reach the ceiling?



4-Part Math Lesson

1. Minds On

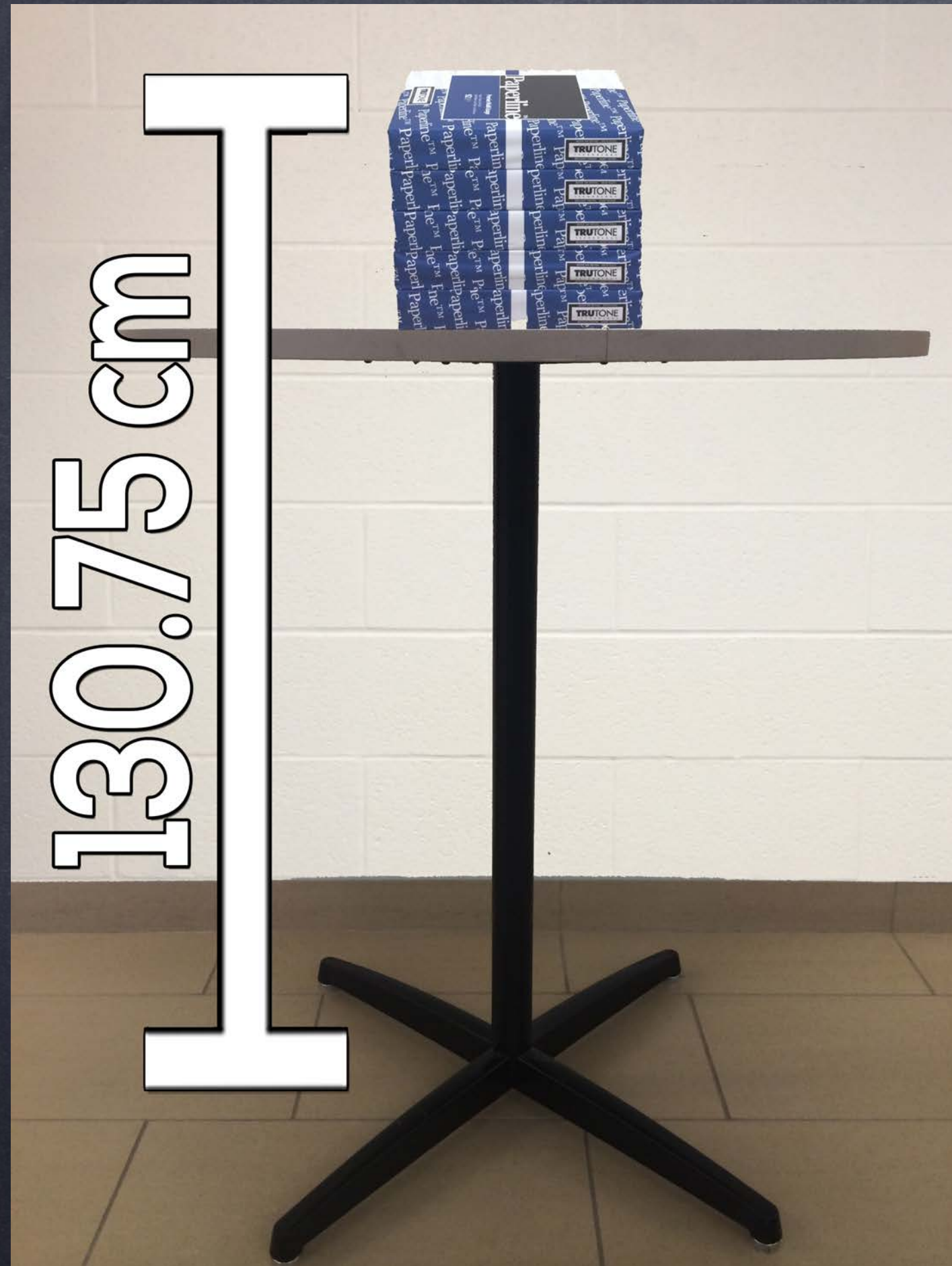
2. Inquiry

3. Connections

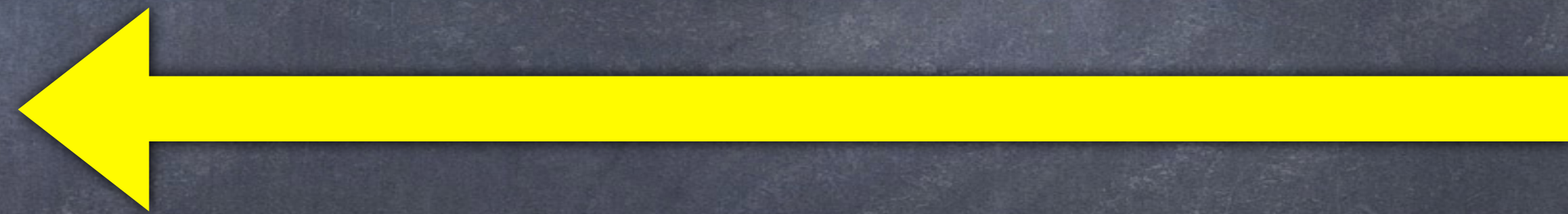
4. Consolidate



2. Inquiry



How tall is the table?





Recall: Stacking Paper

REAL WORLD MATH

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How can we find the equation of this situation given only these two images?

$$y = mx + b$$
$$y = 4.95x + 106$$

S	H
0	106
1	110.95
2	115.9
3	120.85
4	125.8
5	130.75

> 4.95
 > 4.95
 > 4.95
 > 4.95
 > 4.95

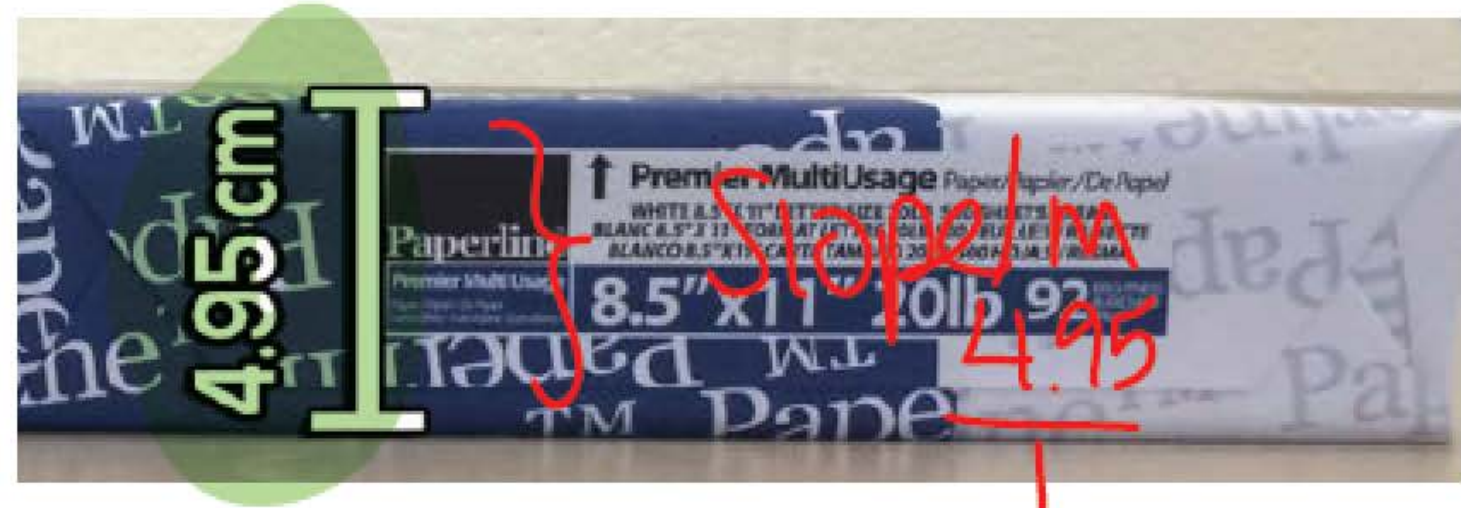




Recall: Stacking Paper

REAL WORLD MATH

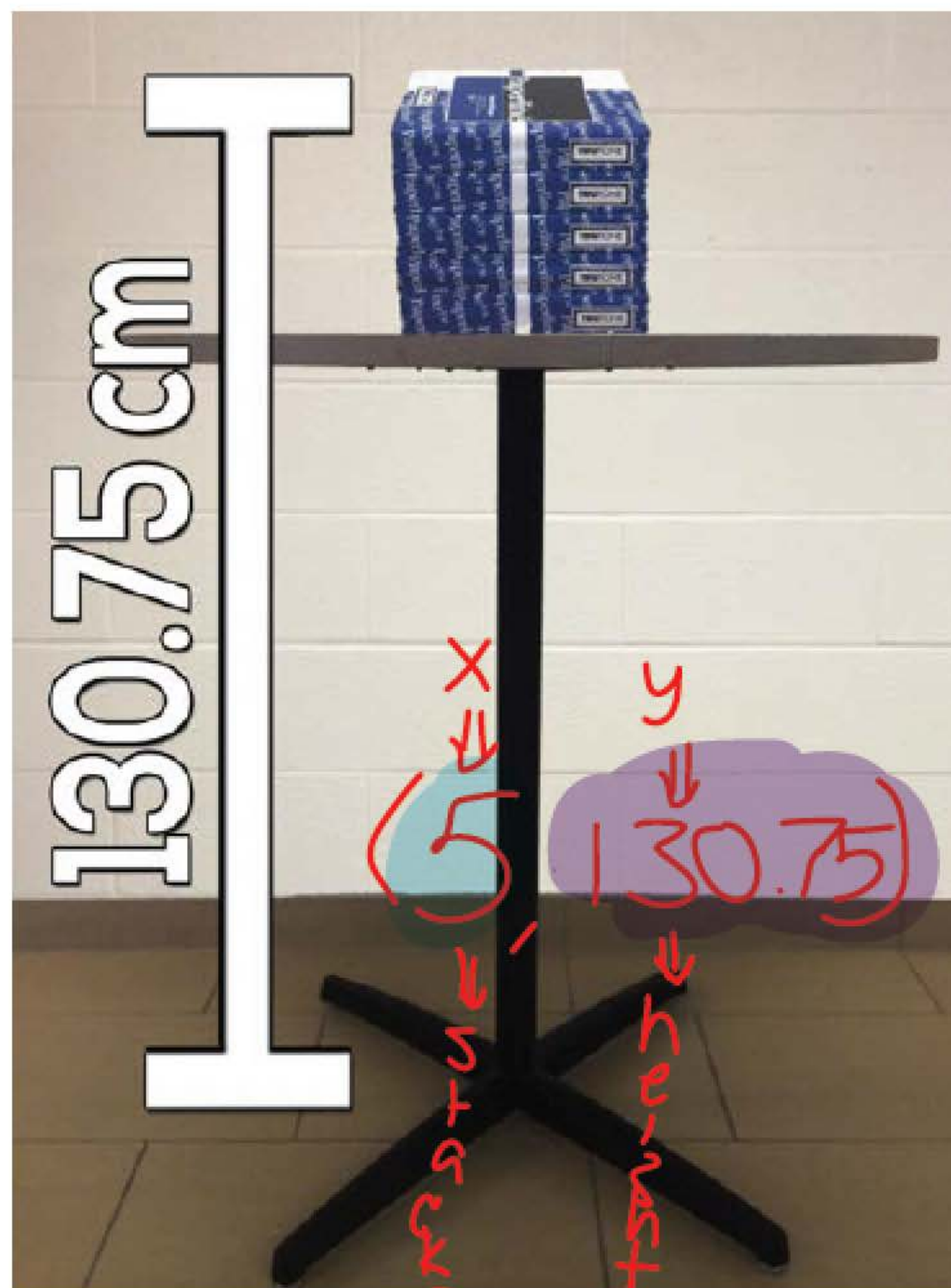
WWW.TAPINTOTEENMINDS.COM



How can we find the equation of this situation given only these two images?

$$y = mx + b$$

Stacks	height
0	106
1	110.95
2	116.9



$$y = 4.95x + 106$$

We were given the slope & a point (x, y) , we can ALWAYS find the y-intercept (initial value)

$$y = mx + b$$

$$130.75 = (4.95)(5) + b$$

$$130.75 = 24.75 + b$$

$$130.75 - 24.75 = 24.75 - 24.75 + b$$

$$106 = b$$

$$130.75 = 4.95x + 106$$

$$\begin{array}{r}
 4.95 \quad 130.75 \\
 \times \quad 5 \quad - 24.75 \\
 \hline
 24.75 \quad 106.00
 \end{array}$$



4-Part Math Lesson

1. Minds On

2. Inquiry

3. Connections

4. Consolidate



3. Connections



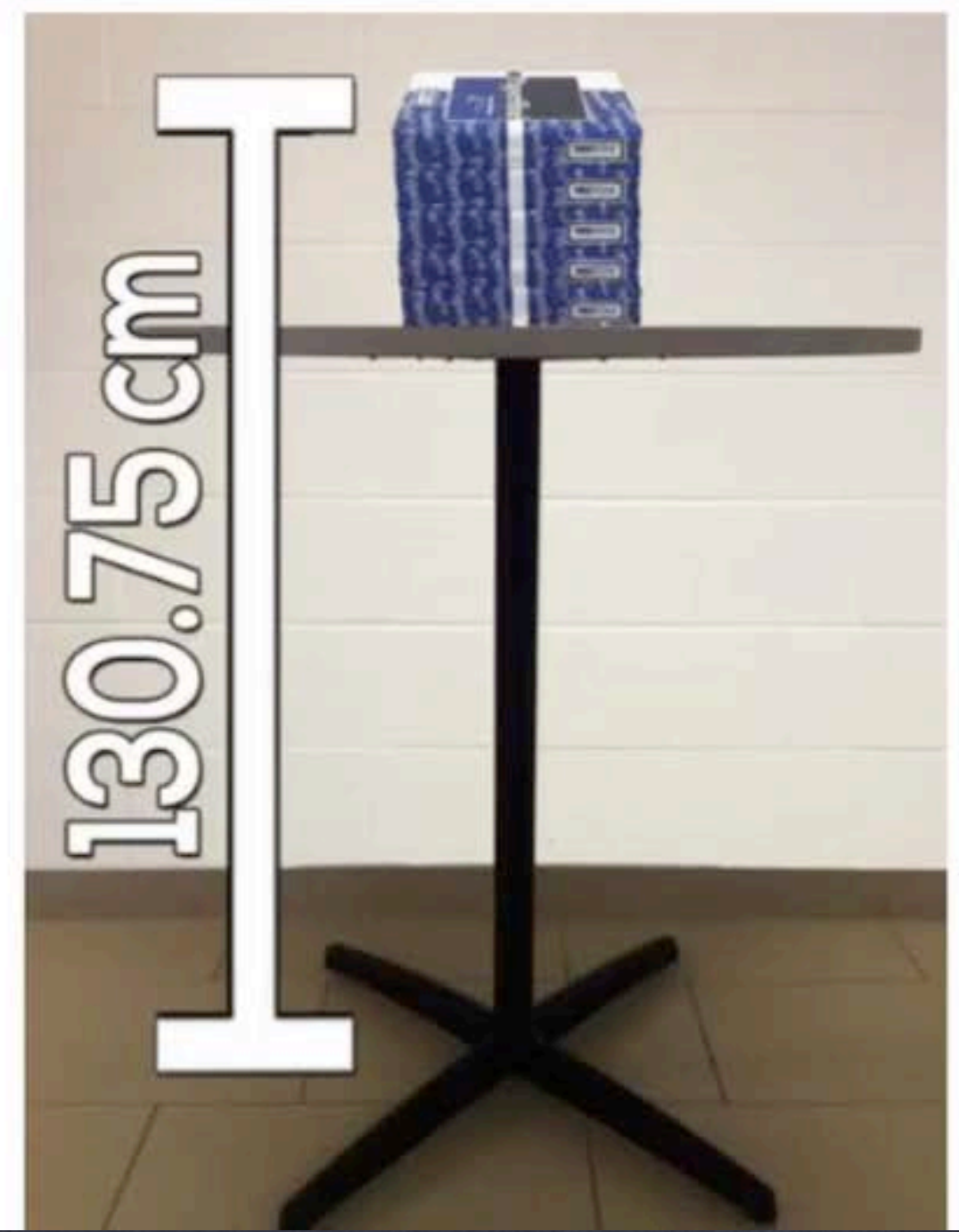
Find Equation Using Slope and a Point

REAL WORLD MATH

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How can we find the equation of this situation given only these two images?



4-Part Math Lesson

1. Minds On

2. Inquiry

3. Connections

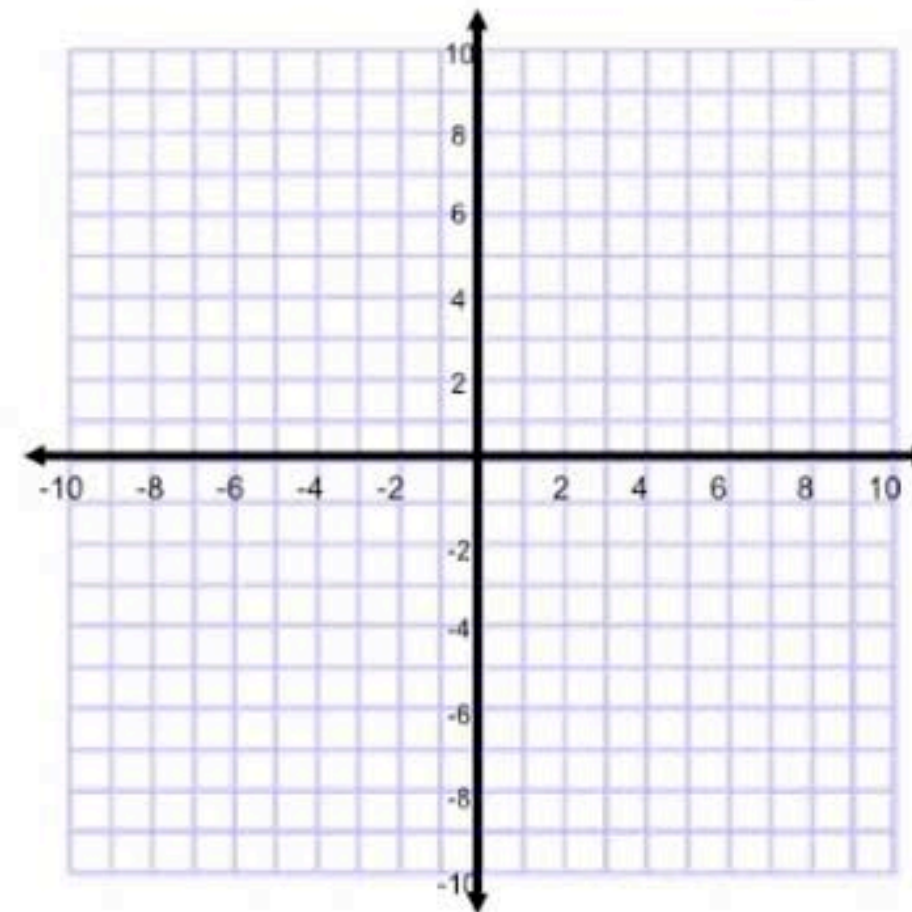
4. Consolidate



4. Consolidate

Example #1: Find the equation of a line with a *slope* of 2 and passes through point (1, 5).

$$y = mx + b$$



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4-Part Math Lesson

1. Minds On

2. Inquiry

3. Connections

4. Consolidate



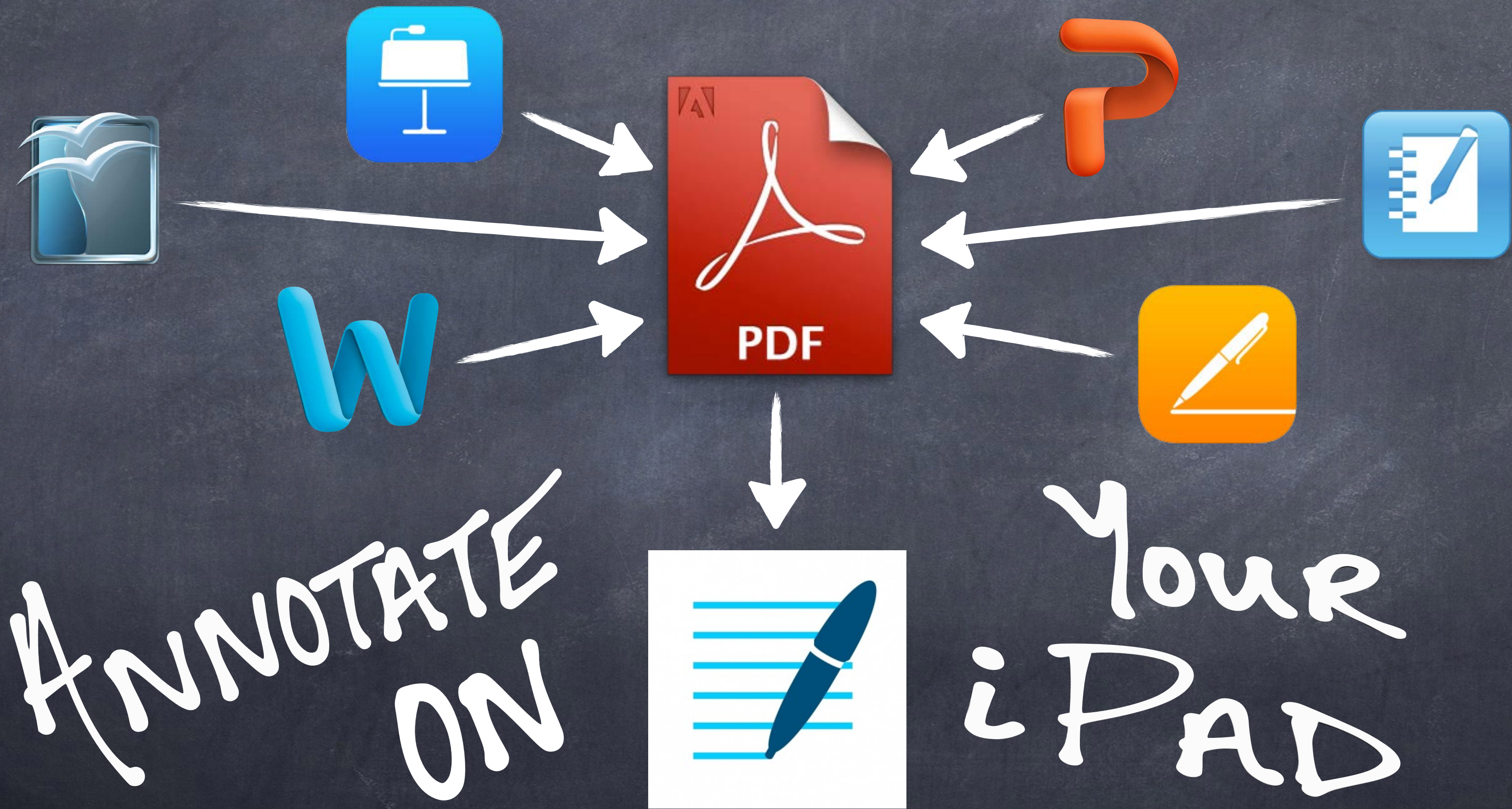
Workflow



GoodNotes 4

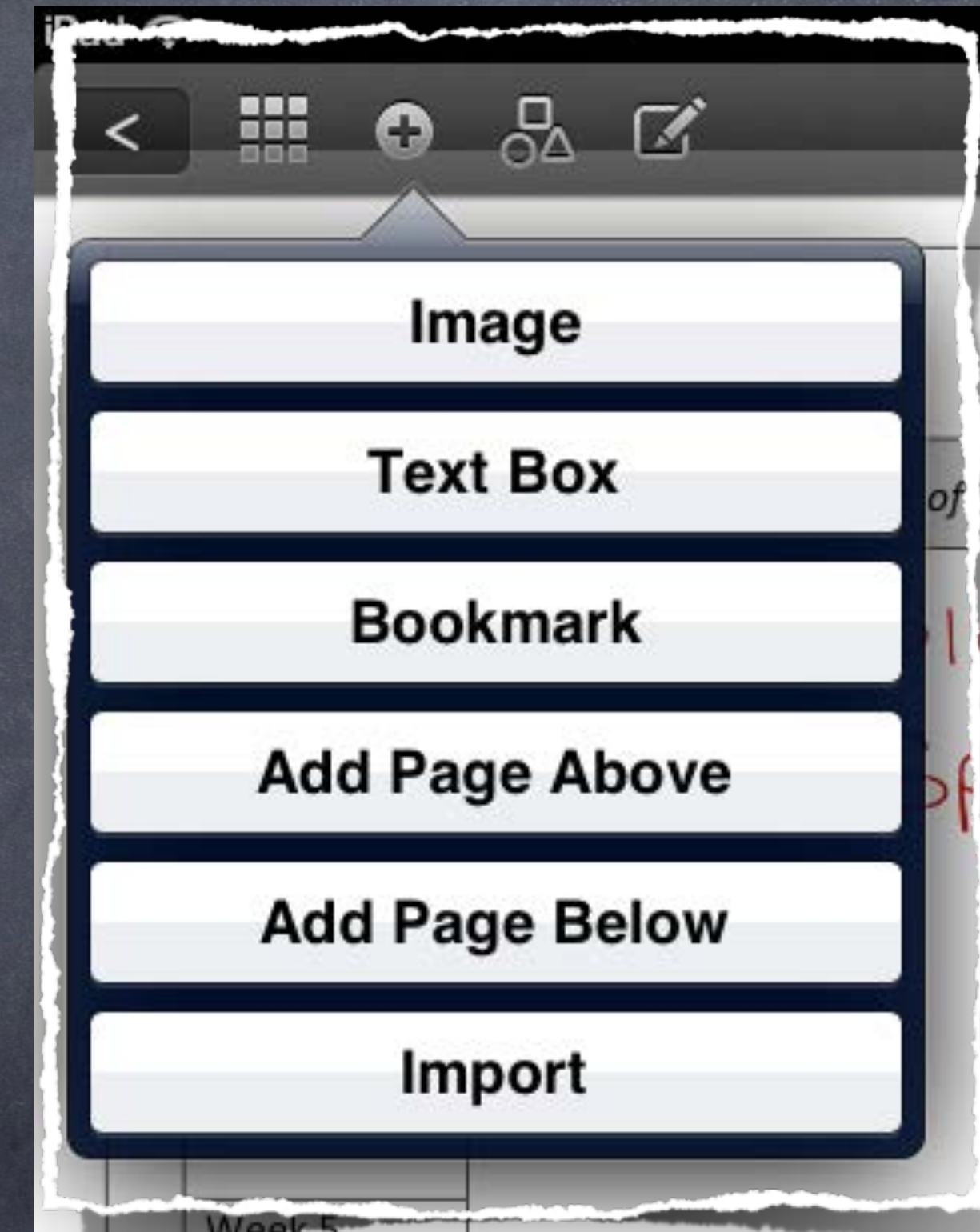


GoodNotes 4





GoodNotes 4 – Annotate PDFs



Write With Ease



Zoom Tool

Zoom Box

The screenshot shows a tablet interface with a math problem titled "Which Should I Buy?". The problem is divided into two options:

Option #1

$$\frac{\$3.99}{1.75L} = \frac{\$2.28}{1L}$$

Option #2

$$\frac{\$4.99}{2.63L} = \frac{\$1.90}{1L}$$

Handwritten calculations show the unit price for each option. For Option #1, $\$3.99 \div 1.75 = \2.28 . For Option #2, $\$4.99 \div 2.63 = \1.90 . The word "Therefore," is written in red cursive and is highlighted with a blue box in the original image. A zoomed-in view of this word is shown below the main screenshot.



Saving Content

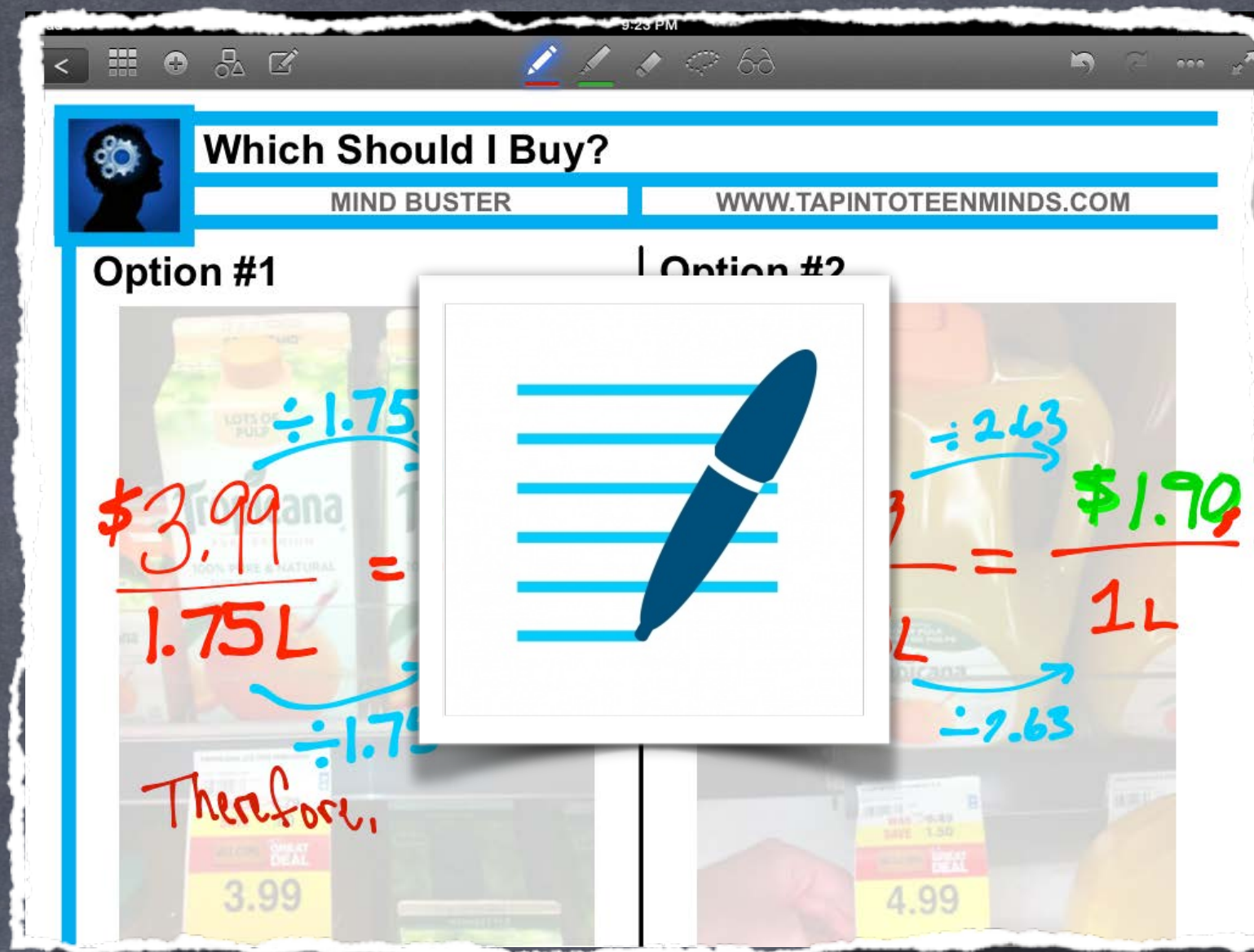
iTunes



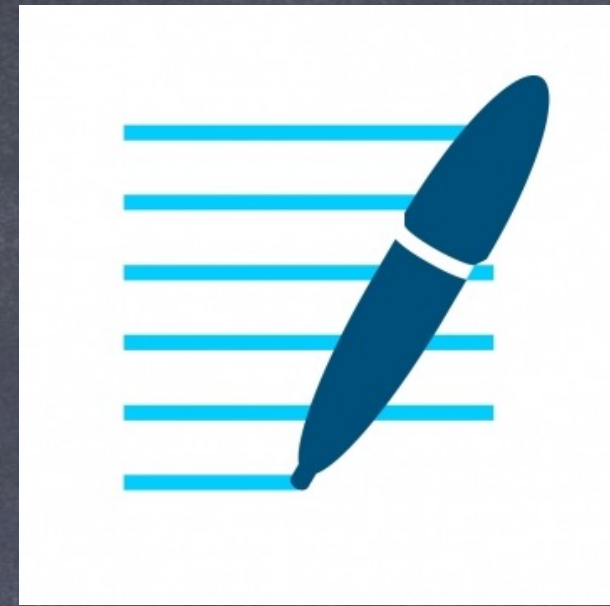
Email



Cloud



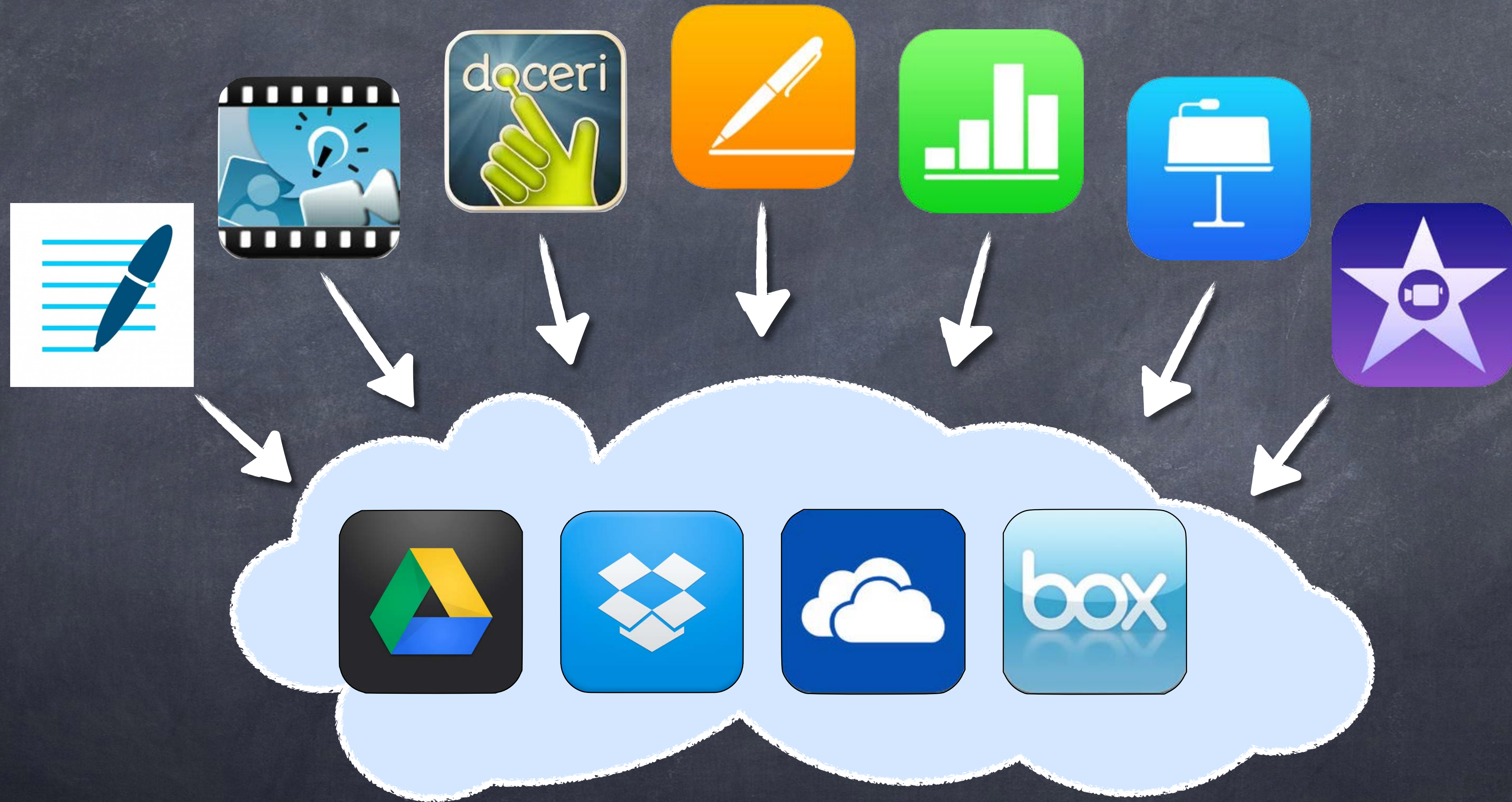
One-Way Sync



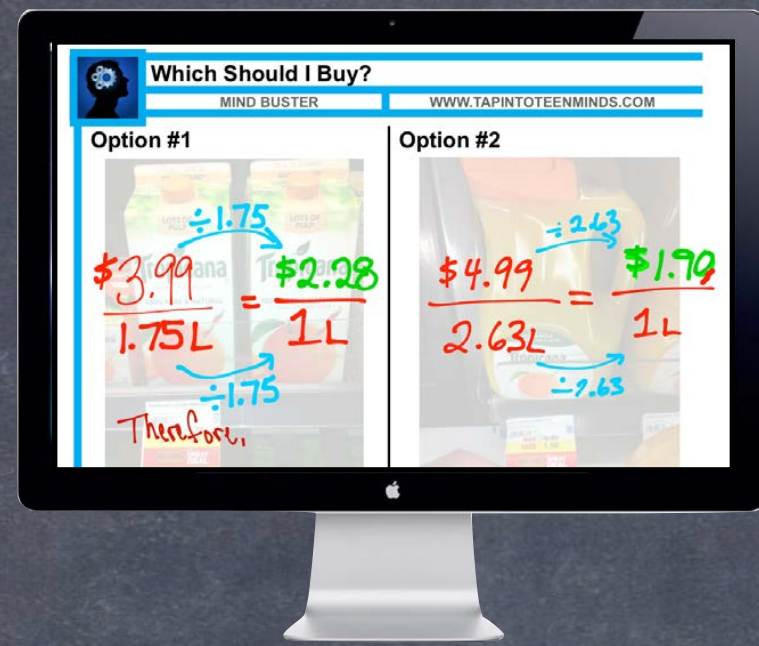
Auto-Magically!



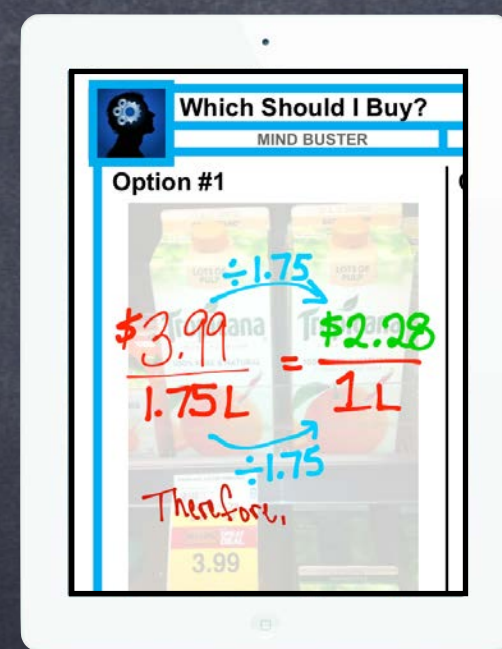
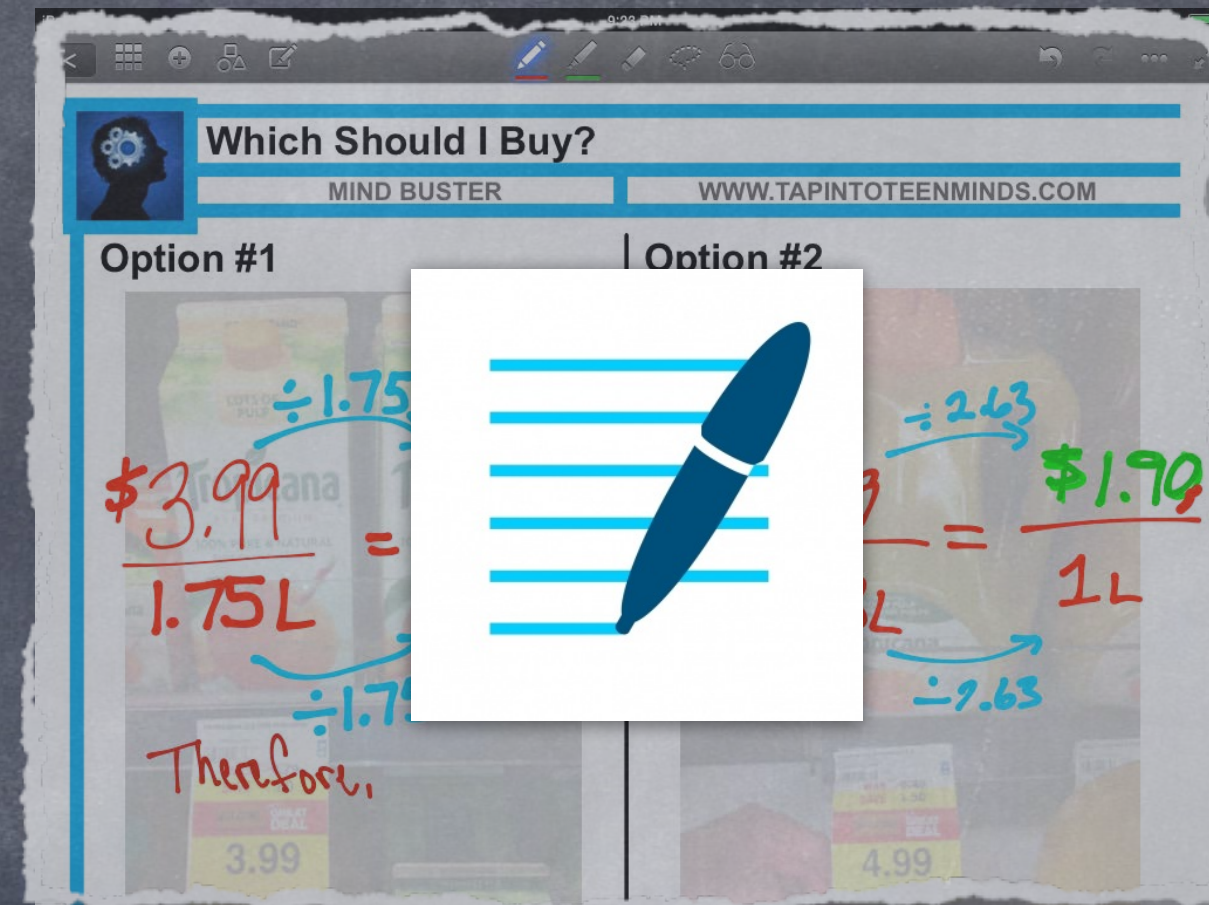
Cloud Shared Folders



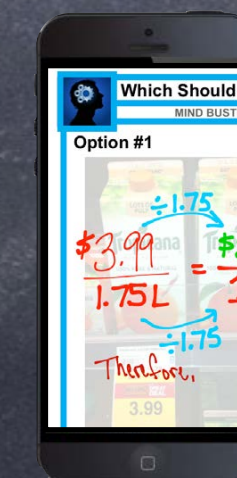
Accessible Anywhere



Computer



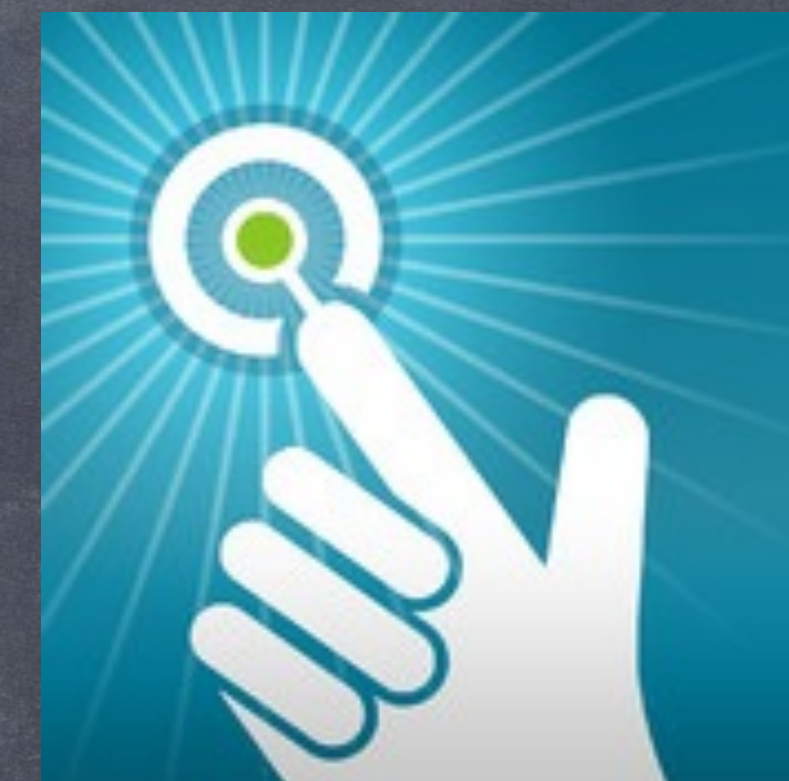
Tablet



Smartphone



Workflow



Doceri





Doceri

Maclaurine
 $f(x) = f(0) + f'(0)x + \frac{f''(0)}{2!}x^2 + \dots$

Consider
So $f(x) = e^z$
 $f(x) = e^z$

Similarly
$$\sum_{n=0}^{\infty} \frac{(-1)^n x^{2n}}{(2n)!} = \cos x$$
$$\sum_{n=0}^{\infty} \frac{(-1)^n x^{2n+1}}{(2n+1)!} = \sin x$$

$a+bi : a, b \text{ are real}$
$$\frac{(iz)^2}{2} + \frac{(iz)^3}{3!} + \frac{(iz)^4}{4!} + \dots$$
$$- \frac{iz^3}{3!} + \frac{z^4}{4!} - \frac{iz^5}{5!} + \dots$$
$$\left(\frac{z^2}{2!} + \dots \right) + i \left(z - \frac{z^3}{3!} + \frac{z^5}{5!} - \dots \right)$$

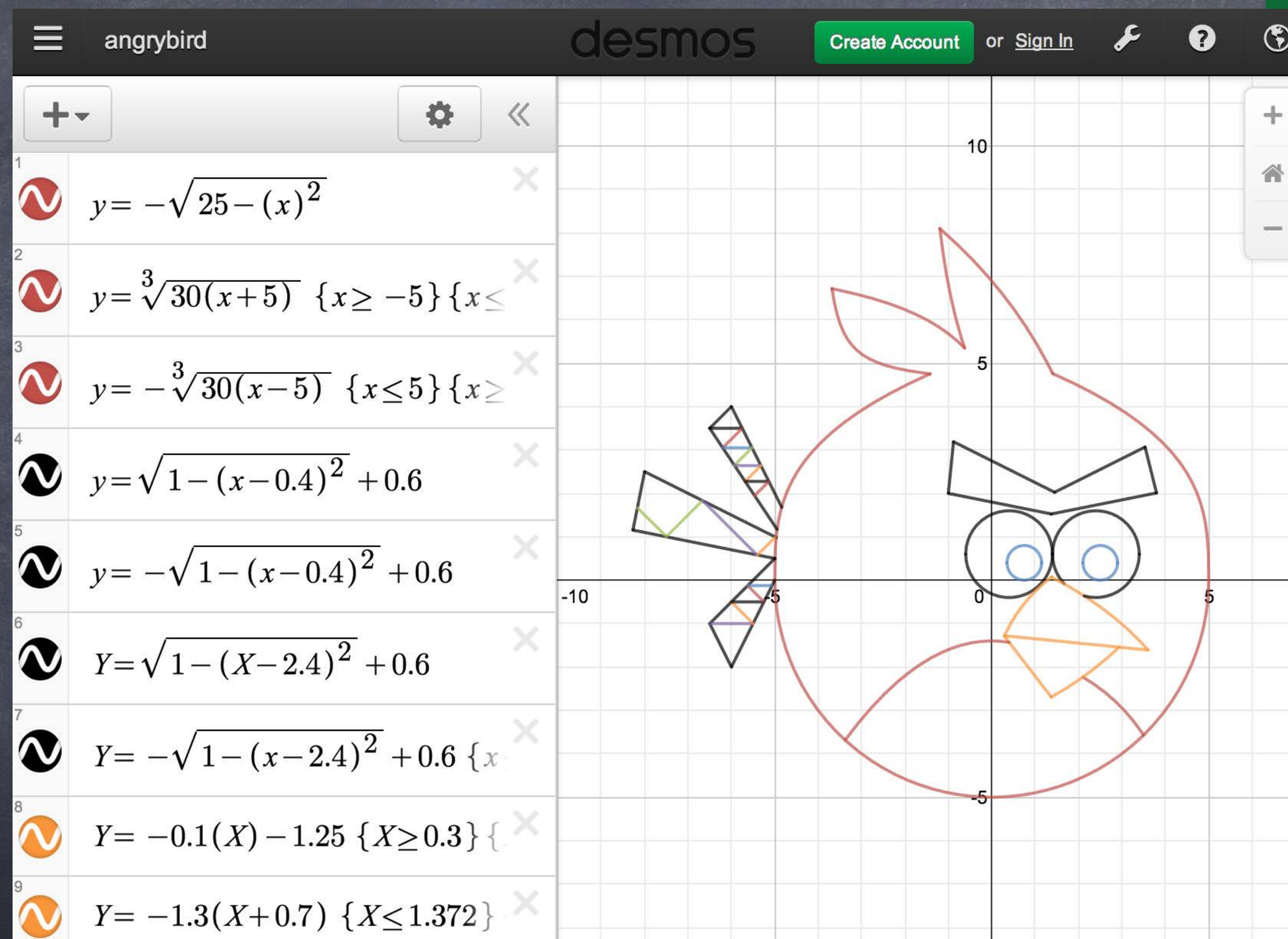
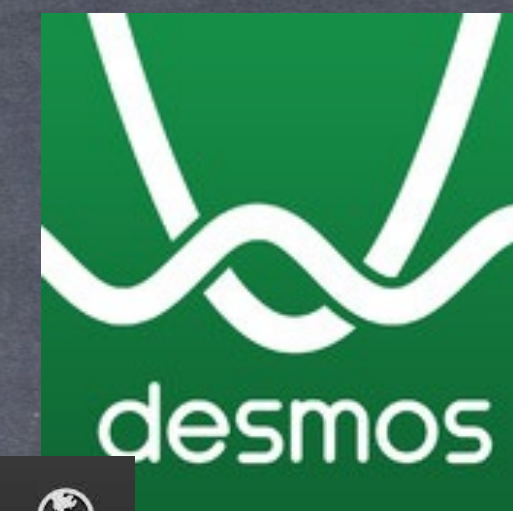
 $+ i \sin z$

$+ i \sin \pi$
 $a = -1$
 $b = 0$
 $a+bi = -1+0i = -1$

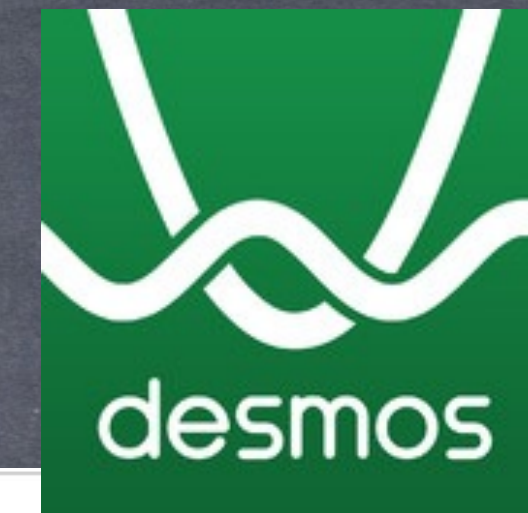
The drawing tool palette includes:
- Pen palette with various colors and line styles.
- Size: 7px
- Spacing: 5%
- Opacity: 100%
- Eraser size: 53px



Desmos



Bad Example? Maybe



1	$y = -\sqrt{2}$	31	$y = 2(x+5) \{x \leq -5\} \{x \geq -6\}$	41	$y = -0.5 \{x \geq -6\} \{x \leq -5.25\}$	$-1.4 \{x \geq -3.38\} \{x \leq -1.4\}$
2	$y = \sqrt[3]{30}$	32	$y = (x+5.5) \{x \leq -4.996\} \{x \geq -6\}$	42	$y = -(x+5.75) \{x \geq -5.625\} \{x \leq -1.4\}$	$0.3) - 0.6 \{x \leq 1.38\} \{x \geq 0.3\}$
3	$y = -\sqrt[3]{3}$	33	$y = -2(x+7) \{x \leq -6\} \{x > -6\}$	43	$y = 1 \{x \geq -5.625\} \{x \leq -5\}$	$+5.5) - 3 \{x \geq 1.38\} \{x \leq 1.38\}$
4	$y = \sqrt{1-x}$	34	$y = 4 \ln(-x+3.4) - 2.64 \{x \geq -5.927\} \{x \leq -5.138\}$	51	$y = 2.64 \{x \geq -5.927\} \{x \leq -5.138\}$	$1 \{x \geq -8.167\} \{x \leq -1.4\}$
5	$y = -\sqrt{1-x}$	35	$y = -6 \log(x+1.5) - 5.32 \{x \leq -5.32\} \{x \geq -6\}$	52	$y = (x+7.96) \{x \leq -5.32\} \{x \geq -6\}$	$(x-2.4)^2 + 0.6 \{x \geq -6\} \{x \leq -1.4\}$
6	$Y = \sqrt{1-x}$	36	$y = \log(x+5)(2) + 2.276 \{x \geq -5.684\} \{x \leq -5.138\}$	53	$y = 2.276 \{x \geq -5.684\} \{x \leq -5.138\}$	$5) + 2 \{x \leq -4.84\} \{x \geq -1.4\}$
7	$Y = -\sqrt{1-x}$	37	$y = -6 \log(-x+2.5) + 7.414 \{x \leq -5.138\} \{x \geq -6\}$	54	$y = (x+7.414) \{x \leq -5.138\} \{x \geq -6\}$	$+5.5) + 2 \{x \leq -4\} \{x \geq -1.4\}$
8	$Y = -0.1(x+5)$	38	$y = \frac{5}{(0.6x-3.5)} \{x \leq -4.104\} \{x \geq -6\}$	55	$y = 10^{0.15(x)} - 4.3 \{x \leq 2.936\} \{x \geq -6\}$	$\{x \geq -6.5\} \{x \leq -1.4\}$
9	$Y = -1.3(x+5)$	39	$y = \text{ceil}(0.2x) \{x \geq -6.5\} \{x \leq -6\}$	49	$y = 3.05 \{x \geq -6.2\} \{x \leq -5.52\}$	$+5) + 0.5 \{x \leq -4.96\} \{x \geq -1.4\}$
10	$Y = 0.8(X+5)$	40	$y = (x+5.5) - 1 \{x \leq -5.5\} \{x \geq -6\}$	50	$y = (x+8.575) \{x \leq -5.525\} \{x \geq -6\}$	$5) \{x \leq -8\} \{x \geq -1.4\}$





1 $f(x) = .2x^3 + .1x^5(\{x < -1\})(\{x < 1\})$

2 $f(x) = -.2x^3 + -.1x^5(\{x < -1\})(\{x < 1\})$

3 $f(x) = .2x^3 + .1x^5(\{x > 1\})(\{x < -1\})$

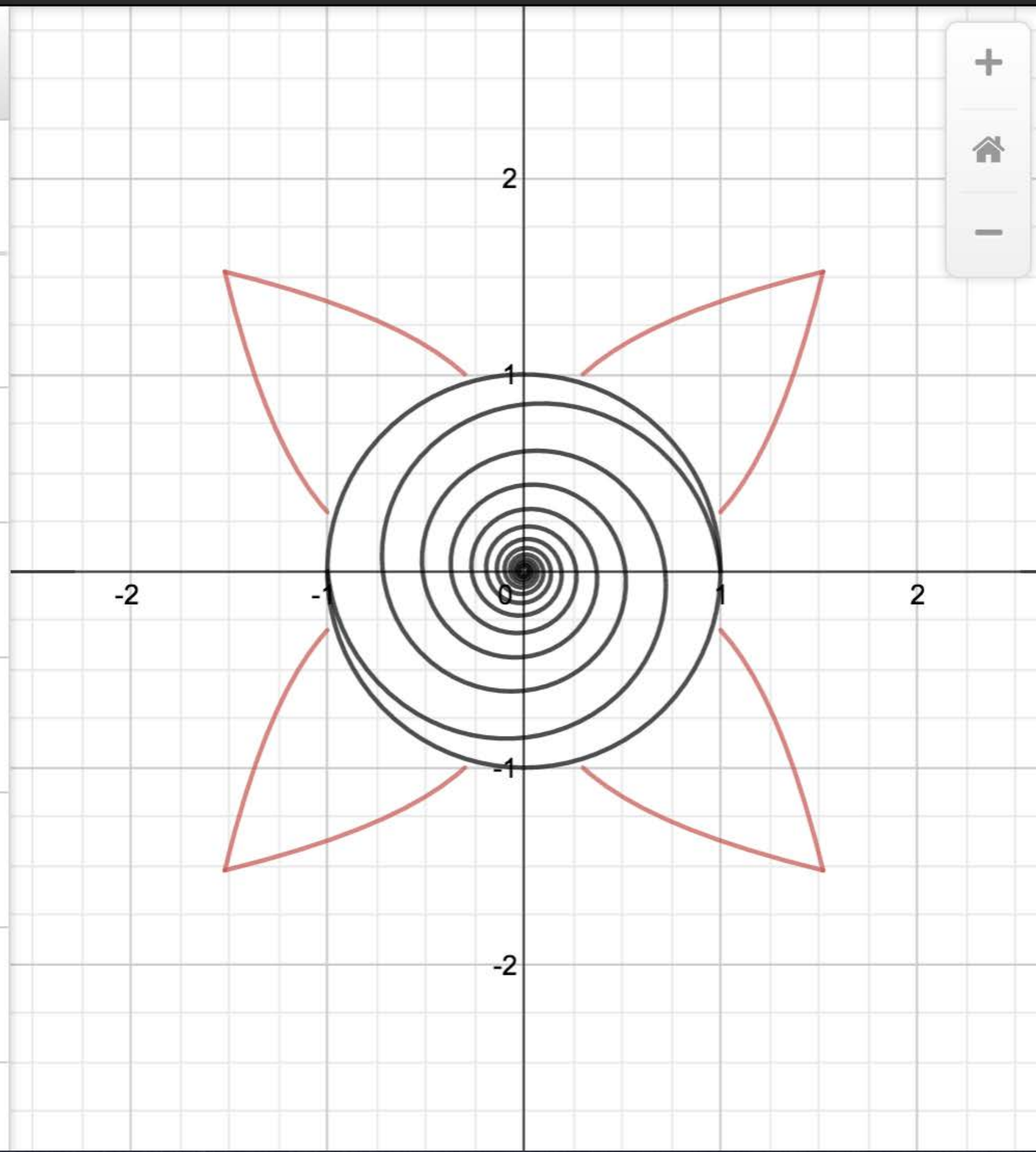
4 $f(x) = -.2x^3 + -.1x^5(\{x > 1\})(\{x < -1\})$

5 $f(y) = .2y^3 + .1y^5(\{y < -1\})(\{y < 1\})$

6 $f(y) = -.2y^3 + -.1y^5(\{y < -1\})(\{y < 1\})$

7 $f(y) = -.2y^3 + -.1y^5(\{y > 1\})(\{y < -1\})$

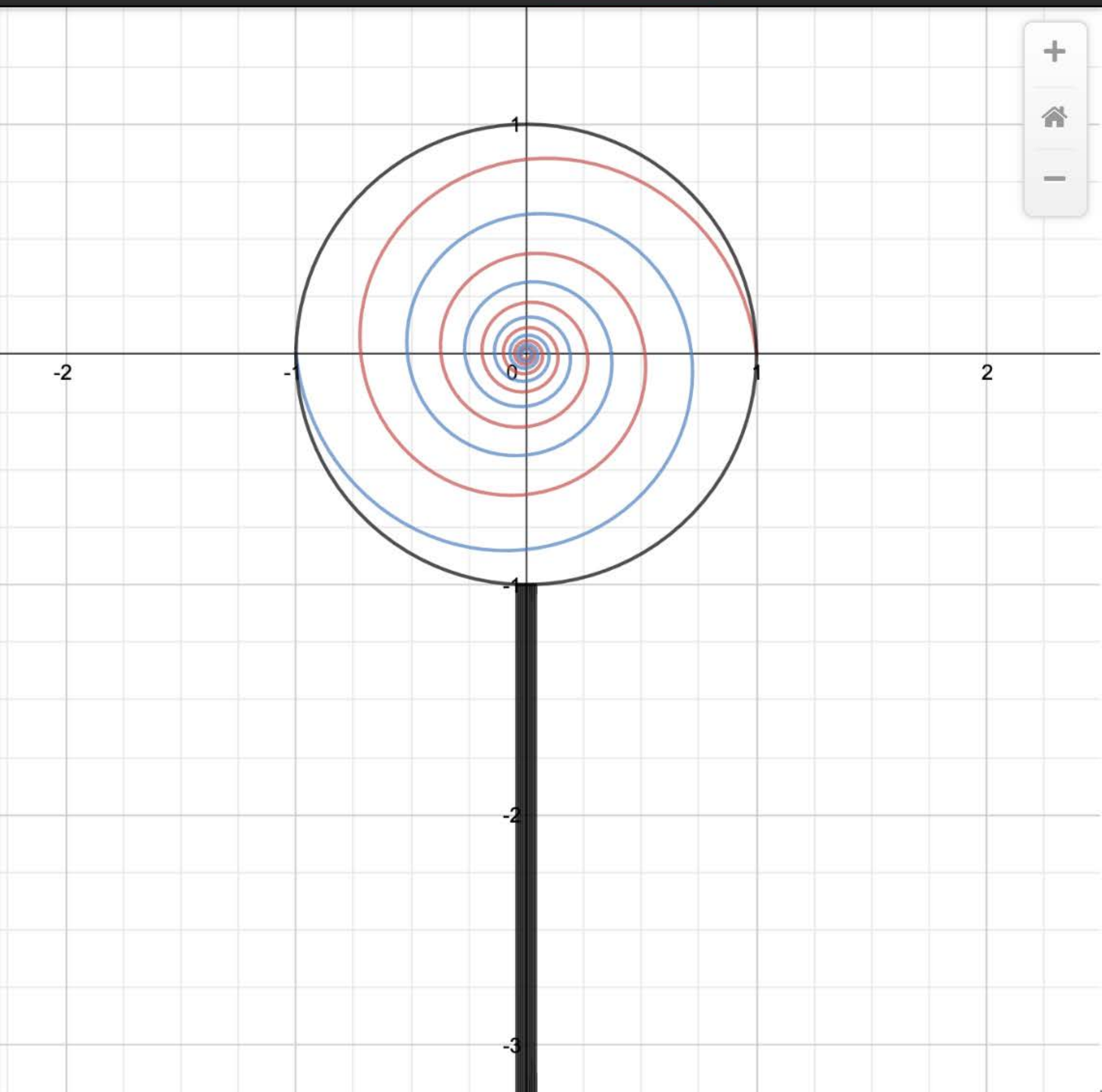
$= .2y^3 + .1y^5(\{y > 1\})(\{y < -1\})$



+ ▾ ⚙ ⏪

- 1 $r = .9^\theta$ ✕
- 2 $r = -.9^\theta$ ✕
- 3 $r = 1$ ✕
-10 10
- 4 $x = 0(\{y < -1\})(\{y > -5\})$ ✕
- 5 $x = 0.01(\{y < -1\})(\{y > -5\})$ ✕
- 6 $x = 0.02(\{y < -1\})(\{y > -5\})$ ✕
- 7 $x = 0.03(\{y < -1\})(\{y > -5\})$ ✕
- 8 $x = 0.04(\{y < -1\})(\{y > -5\})$ ✕
- 9 $x = -0.01(\{y < -1\})(\{y > -5\})$ ✕
- 10 $x = -0.02(\{y < -1\})(\{y > -5\})$ ✕

+
🏠
-





1 $x = \sin(2y) (\{y < 5.5\}) (\{y > -$

2 $-x = \sin(2y) (\{y < 5.5\}) (\{y >$

3 $y = 5.2 (\{x < .82\}) (\{x > -.82\}$

4 $y = 4.9 (\{x < .36\}) (\{x > -.36\}$

5 $y = 4.5 (\{x < .41\}) (\{x > -.41\}$

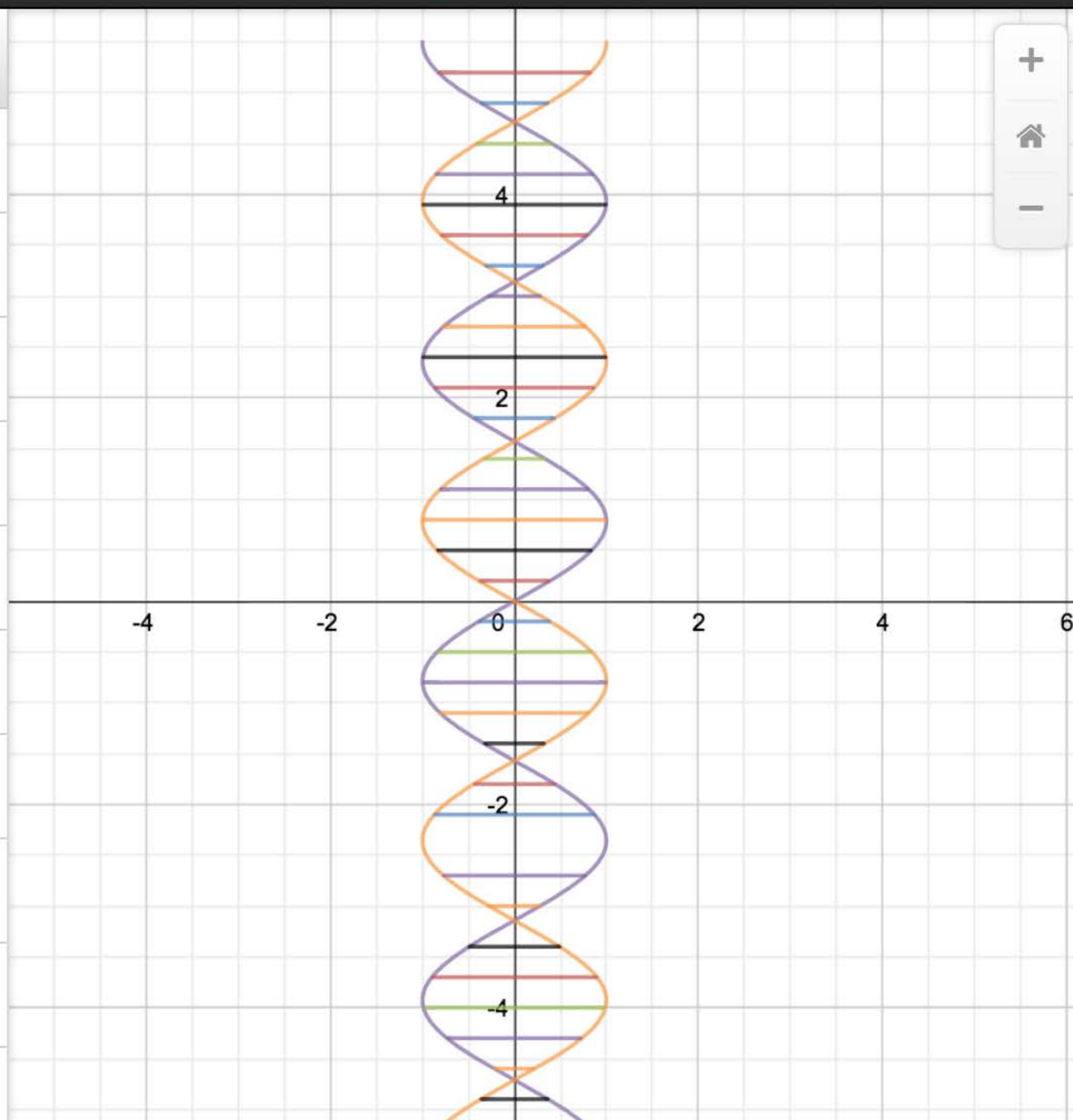
6 $y = 4.2 (\{x < .85\}) (\{x > -.85\}$

7 $y = 3.9 (\{x > -.99\}) (\{x < .99\}$

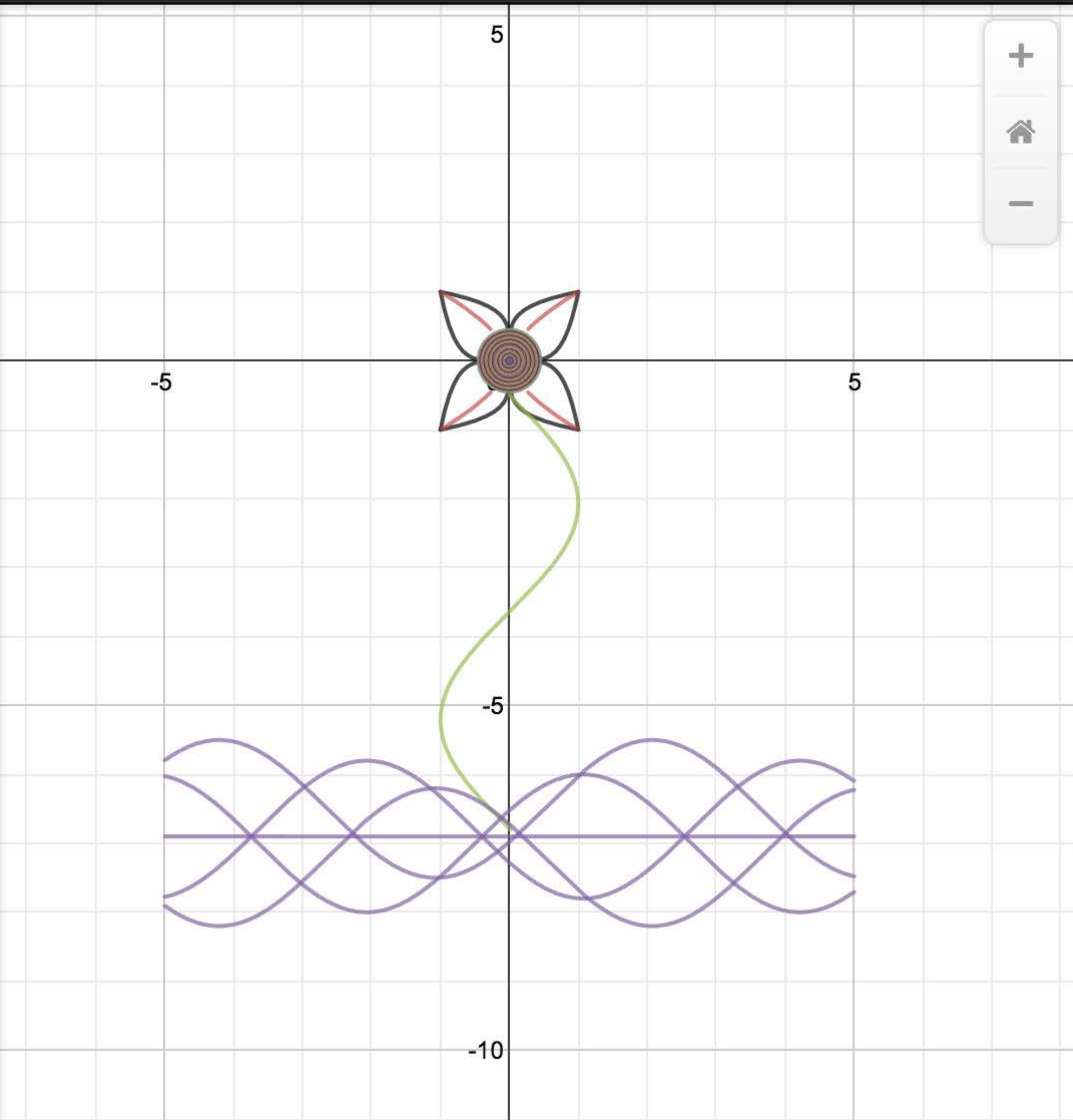
8 $y = 3.6 (\{x < .79\}) (\{x > -.79\}$

9 $y = 3.3 (\{x < .31\}) (\{x > -.31\}$

$(\{x < .28\}) (\{x > -.28\})$



- 1 $x=y^5(\{y>.45\})(\{y<1\})$
- 2 $x=y^5(\{y<-.45\})(\{y>-1\})$
- 3 $y=x^5(\{x>.45\})(\{x<1\})$
- 4 $y=x^5(\{x<-.45\})(\{x>-1\})$
- 5 $-y=x^5(\{x>.45\})(\{x<1\})$
- 6 $-y=x^5(\{x<-.45\})(\{x>-1\})$
- 7 $-x=y^5(\{y<-.45\})(\{y>-1\})$
- 8 $-x=y^5(\{y>.45\})(\{y<1\})$





1



$$y = x^2$$



2



$$y + 1 = x^2$$



3



$$y + 2 = x^2$$



4



$$y + 3 = x^2$$



5



$$y + 4 = x^2$$



6



$$y + 5 = x^2$$



7



$$y + 6 = x^2$$



8



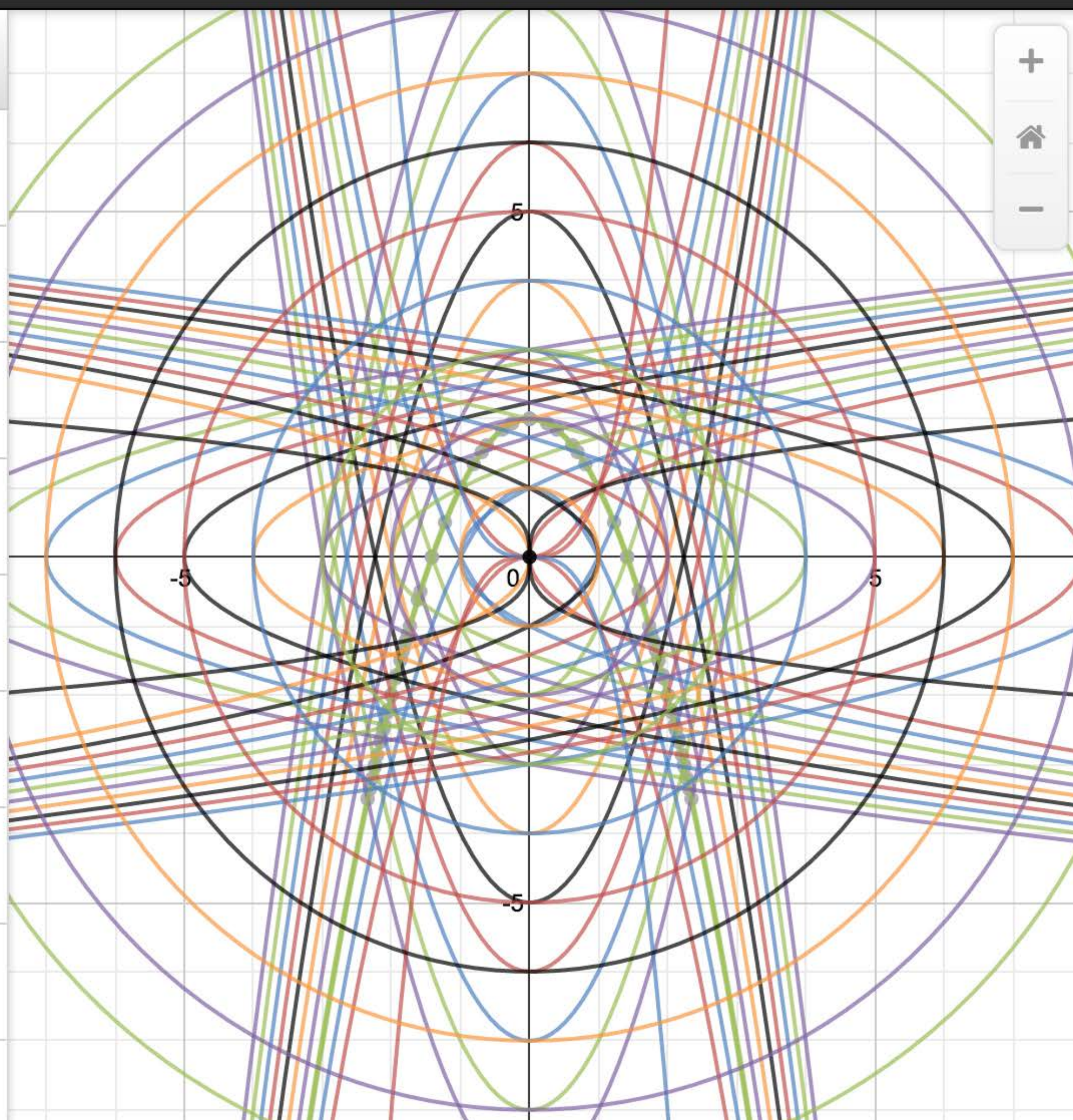
$$y + 7 = x^2$$



9



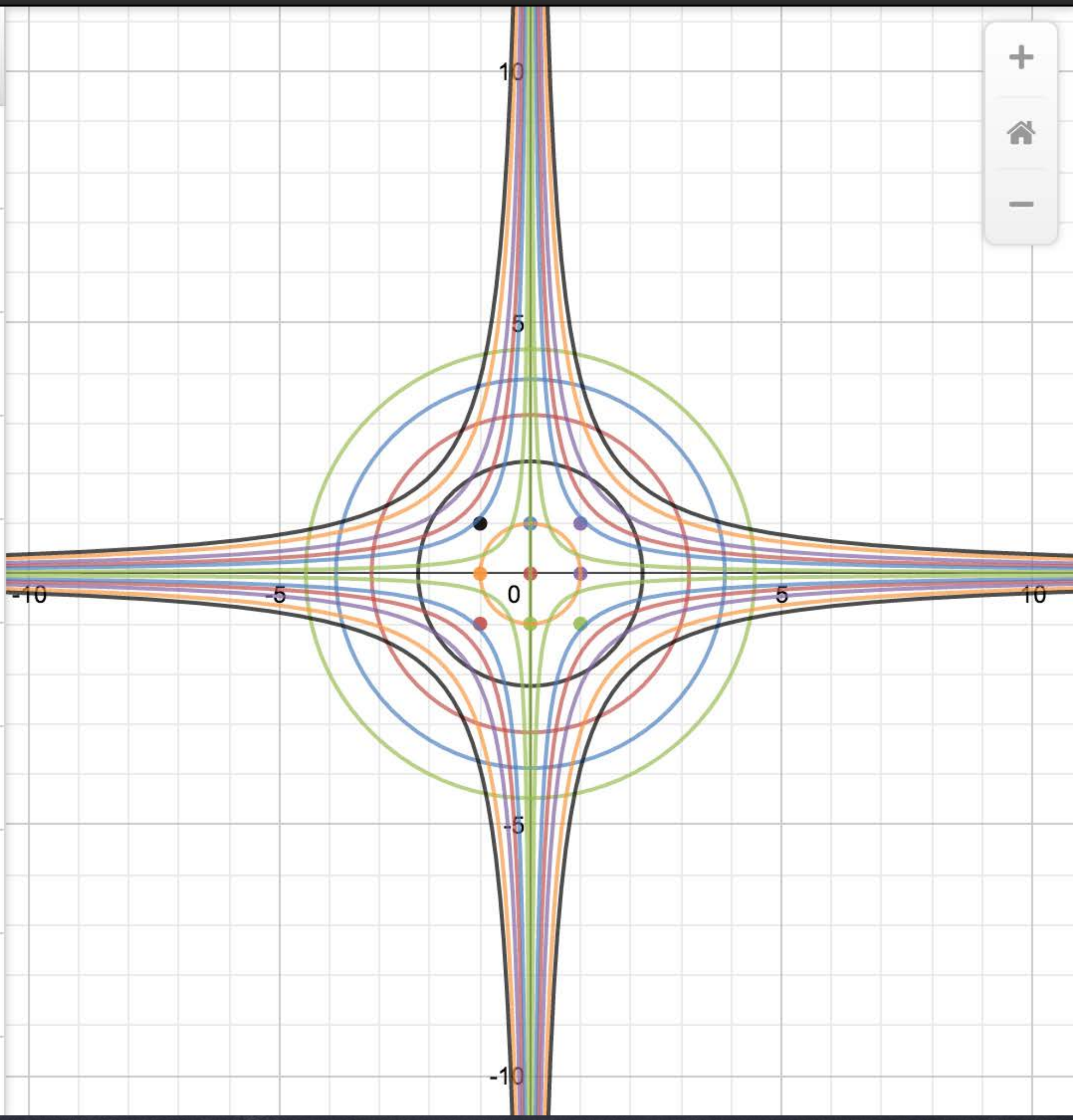
$$= x^2$$



+ ▾ ⚙ ⏪

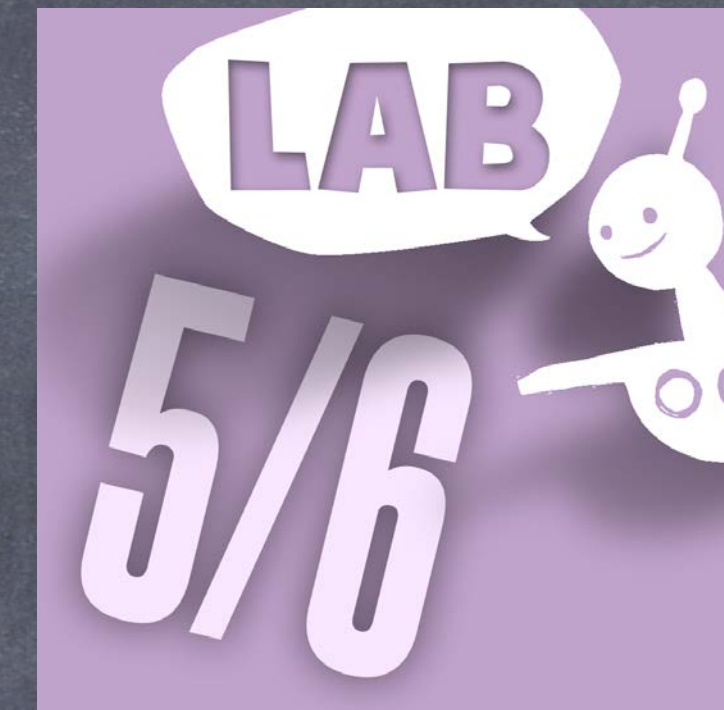
- 1 (0,0) ×
- 2 (0,1) ×
- 3 (0,-1) ×
- 4 (1,0) ×
- 5 (-1,0) ×
- 6 (-1,1) ×
- 7 (-1,-1) ×
- 8 (1,-1) ×
- 9 (1,1) ×

⌨ ▲ $x^2 + y^2$ ×



+
⌂
-

Gamification



Algebra Touch



iPad 10:05 PM 77%

< Topics Undo Restart Help

$$-5 * (8 + 2y + 13) = 6$$

Diagram illustrating the distributive property with annotations:

- Two arcs above the equation, each labeled $-5*$, connect the -5 to 8 and 13 respectively.
- A single arc below the equation, labeled $-5*$, connects the -5 to the entire expression $(8 + 2y + 13)$.

Novice ●●○○ Master ●●●○ New Problem





DragonBox





Embed in Lesson

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Visual Representation

Numerical Representation

1

0/4

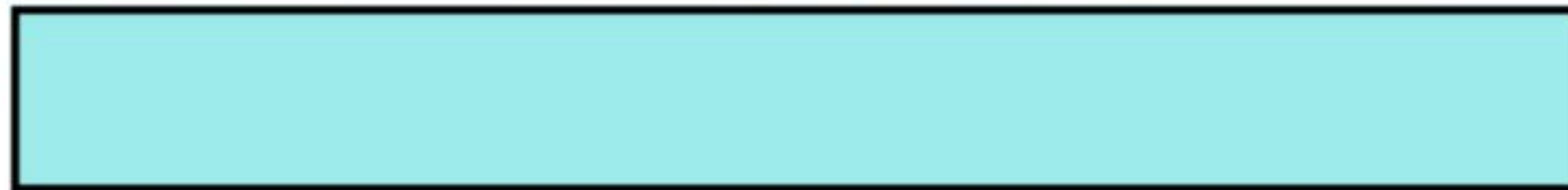
A blue rectangular area containing several small, colorful icons: a blue alien, a yellow robot, a purple alien, a yellow robot, and a red cube.

SAME AS

2/3

A blue rectangular area containing several white squares of various sizes and orientations, arranged in a pattern that corresponds to the visual representation above.

SAME AS



Algebraic Representation





Embed in Lesson

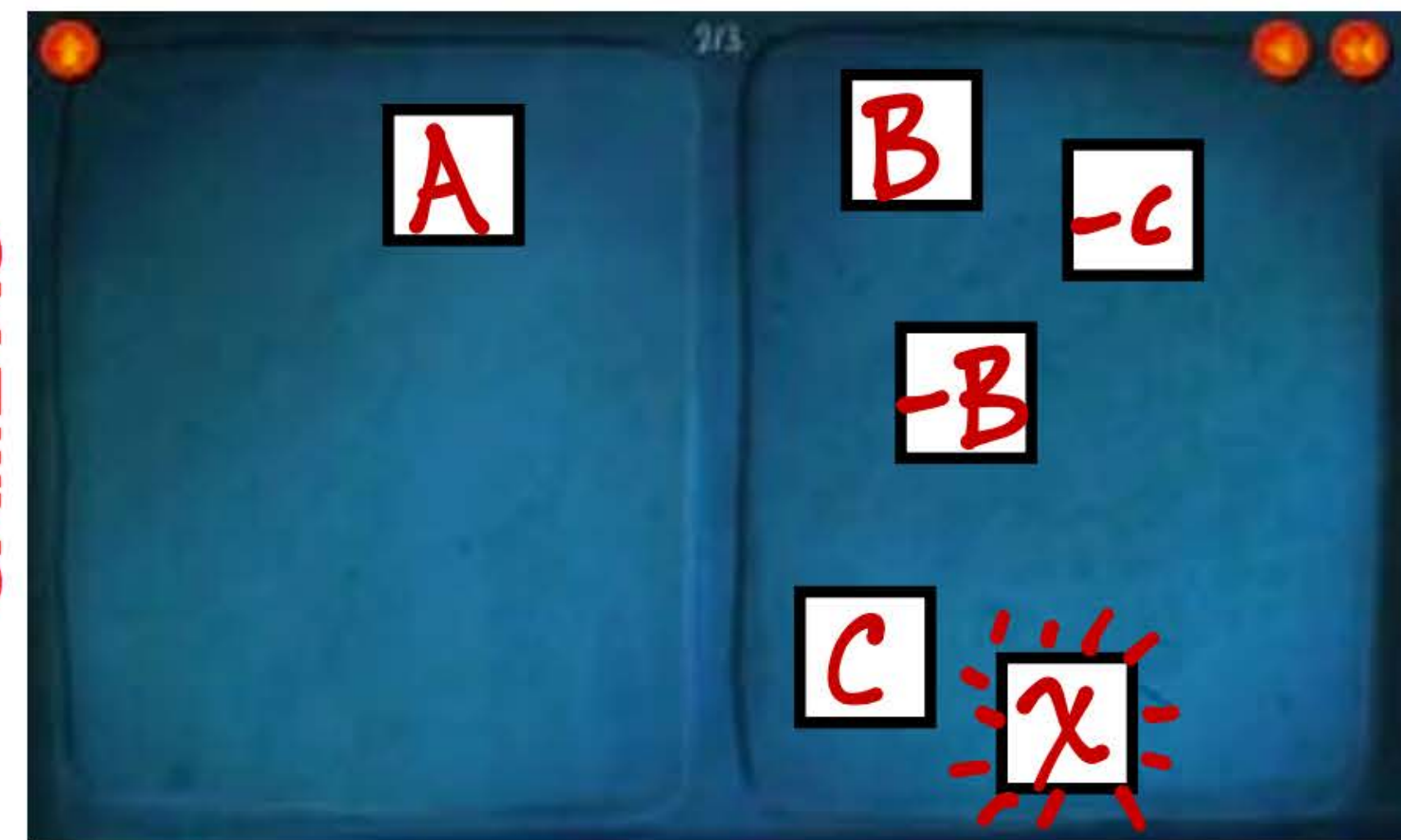
Graphical Representation

Numerical Representation

1



SAME AS



SAME AS

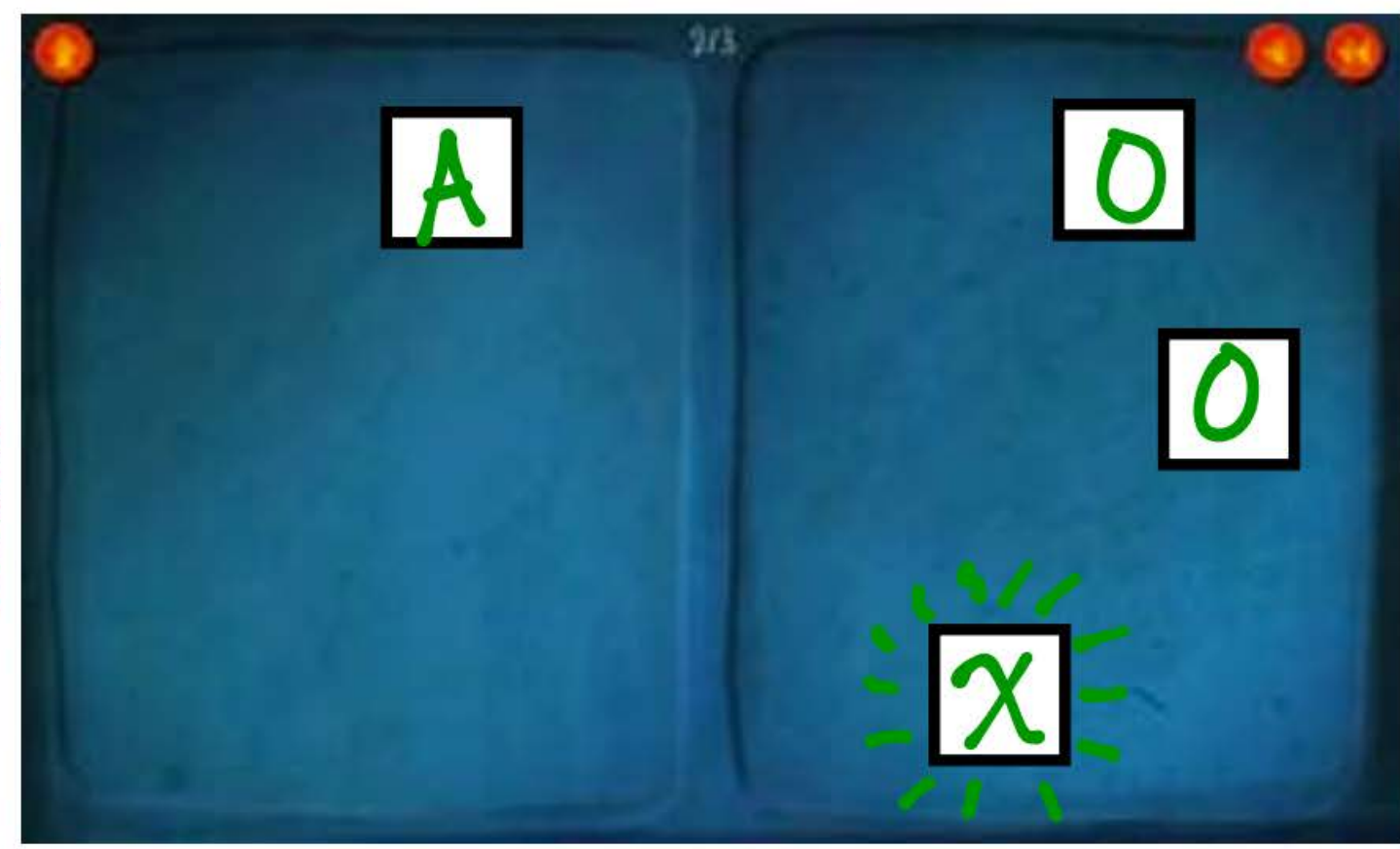
$$A = B - C + C - B + x$$

Algebraic Representation





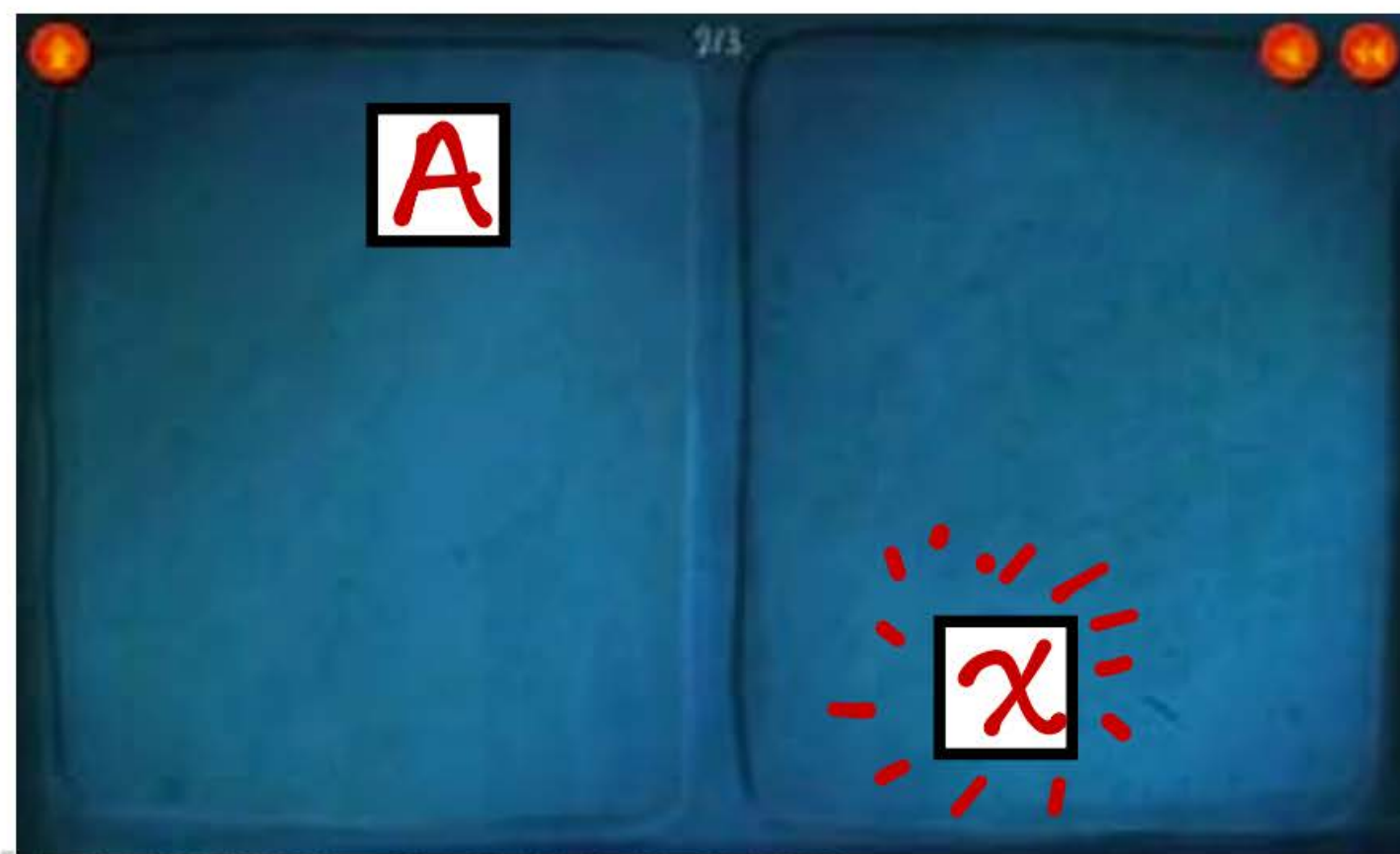
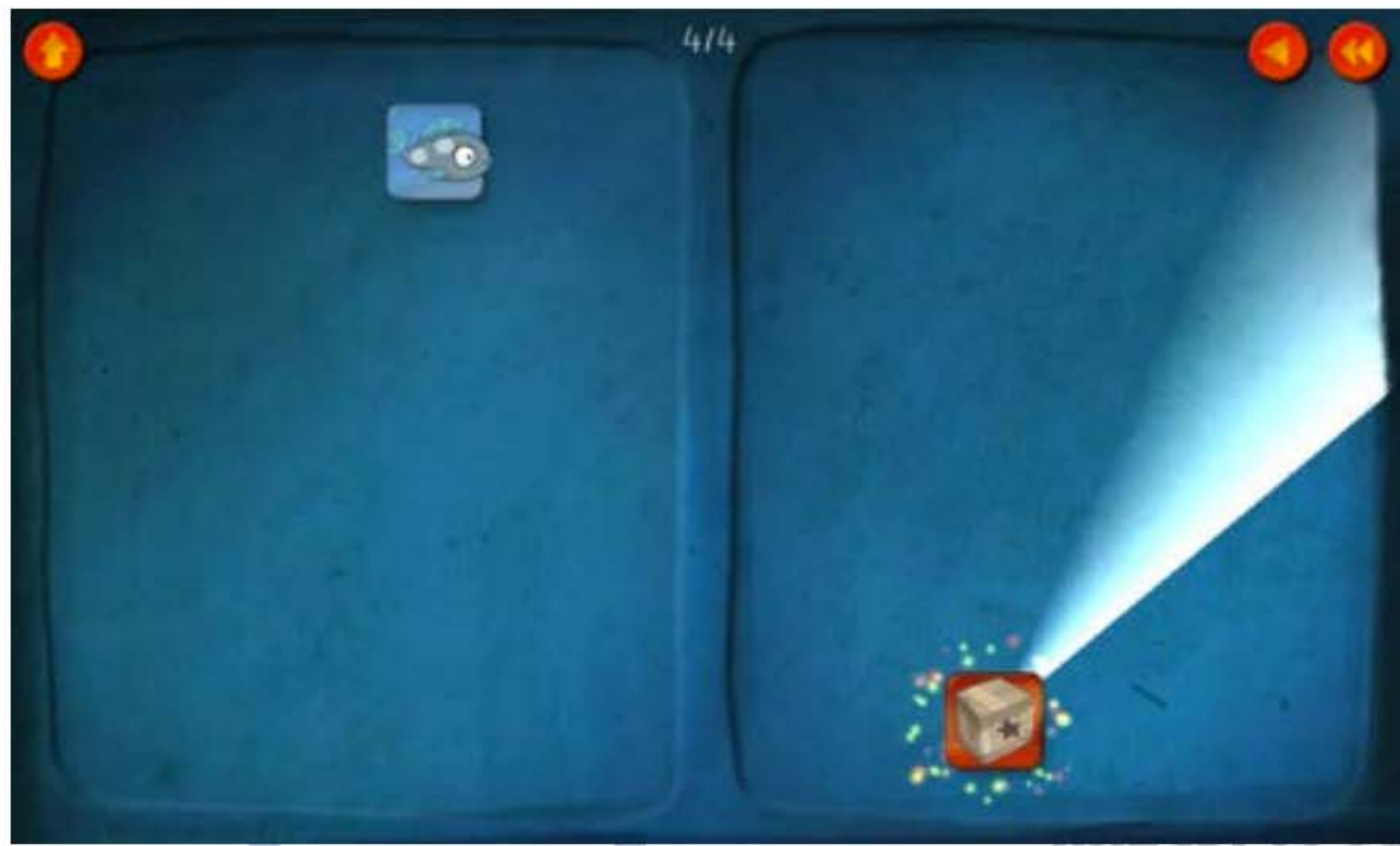
SAME AS



SAME AS

$$A = O + O + X$$

3

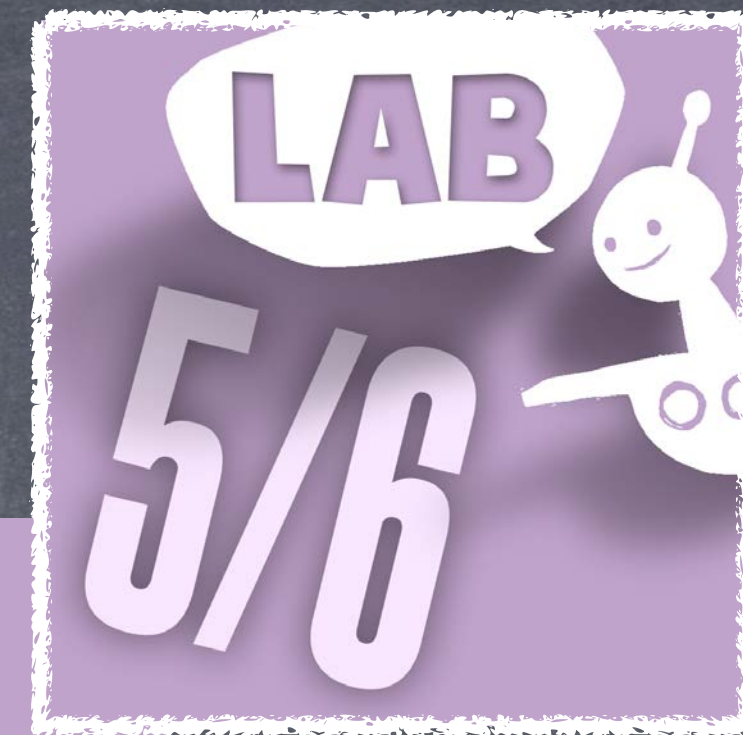


SAME AS

$$A = X$$



Oh No! Fractions!



✖

$\frac{10}{10}$

Find the common denominator

10 12

SHOW ME! FOUND IT!

$\frac{8}{12}$

The image shows a sequence of three panels. The first panel on the left has a purple background and displays the fraction $\frac{10}{10}$ in large black font. The middle panel has a light blue background and is titled "Find the common denominator". It contains two vertical bars made of small grey rectangles. The first bar is labeled "10" and has 10 segments. The second bar is labeled "12" and has 12 segments. Below the bars are the labels "SHOW ME!" and "FOUND IT!". The third panel on the right has a purple background and displays the fraction $\frac{8}{12}$ in large black font.



Puppet Pals: Director's Pass



Tellagami



iPad 10:48 PM 76%

RESET

RECORD

ABC TYPE

PREVIEW

CHARACTER

EMOTION

BACKGROUND

SHARE

Describe the shape of the graph.
Where does it intersect the vertical axis?

TIME	# of FLAPS
0	0
1	54
2	108
3	162
4	216
5	270
6	324

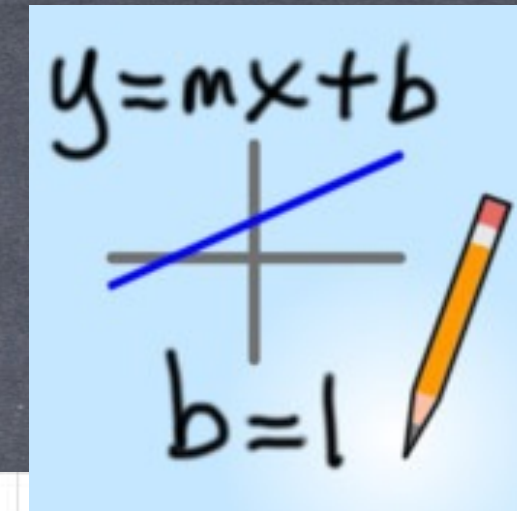
of Flaps!

Describe the shape of the graph.
Where does it intersect the vertical axis?

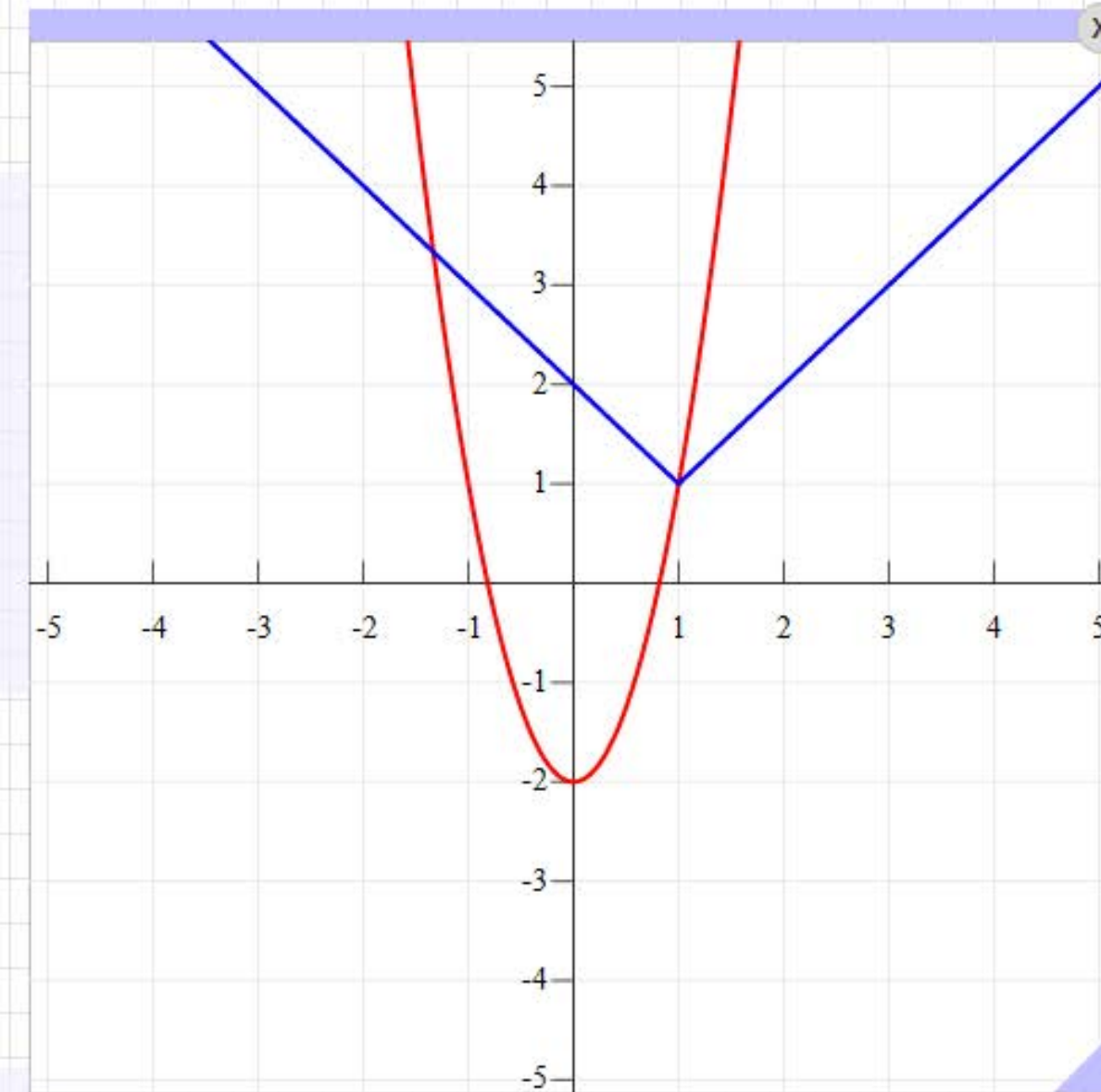
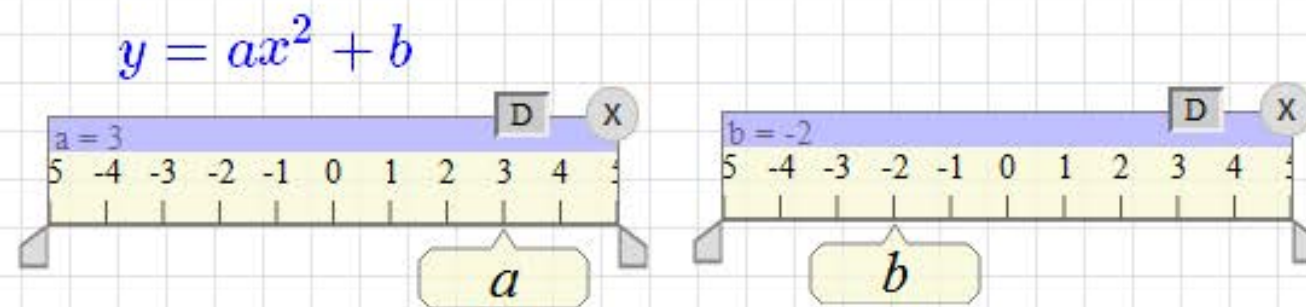
WOW! Rising to the Right! Positive "Perfect" TIME



FluidMath



$$y = ax^2 + b$$



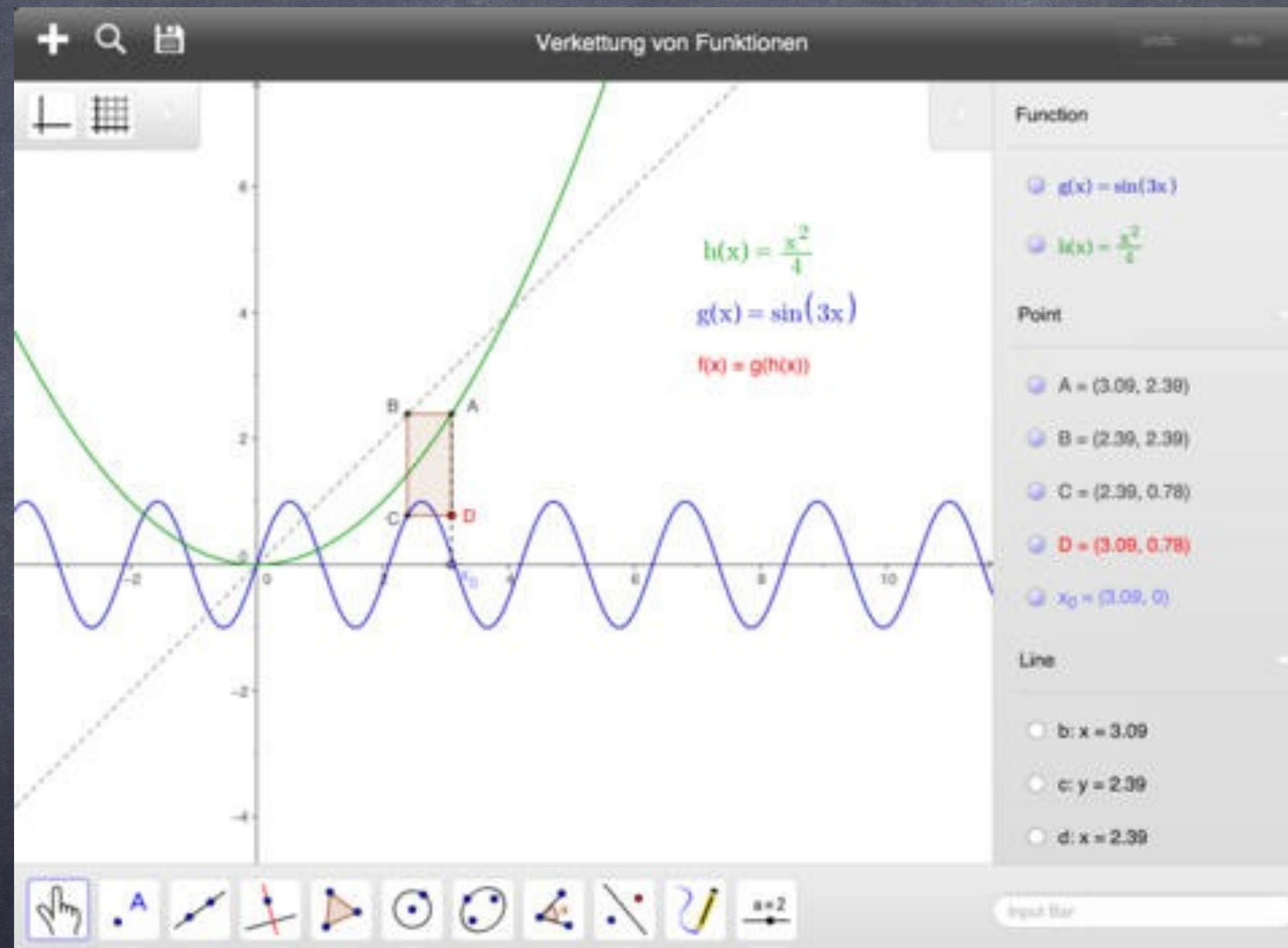
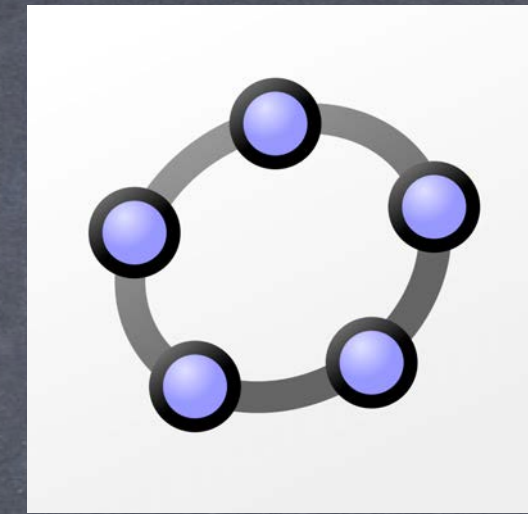
$$y = |x - h| + k$$

$$y = |x - h| + k$$

Fluidity Software, Inc. © 2012



GeoGebra





socrative
1

ROOM: 51134
Dashboard

Menu

Dashboard

Space Race in Progress...

Start a Quiz

Quick Question

Space Race

Exit Ticket

Manage Quizzes

The screenshot shows the Socrative dashboard interface. At the top, there is a blue header bar with the Socrative logo and name on the left, the room number "ROOM: 51134" and the word "Dashboard" in the center, and a "Menu" button on the right. Below the header, there is a dark grey area with a "Dashboard" tab on the left and a red notification "Space Race in Progress..." on the right. The main content area is a dark grey grid containing four green buttons: "Start a Quiz" (with a smartphone icon), "Quick Question" (with a bar chart icon), "Space Race" (with a rocket icon), and "Exit Ticket" (with a person walking icon). At the bottom of this grid is a blue button with a wrench icon labeled "Manage Quizzes".

Cookie Cutter



@MathletePearce



www.tapintoteenminds.com



@JustinLevack

Cookie Cutter

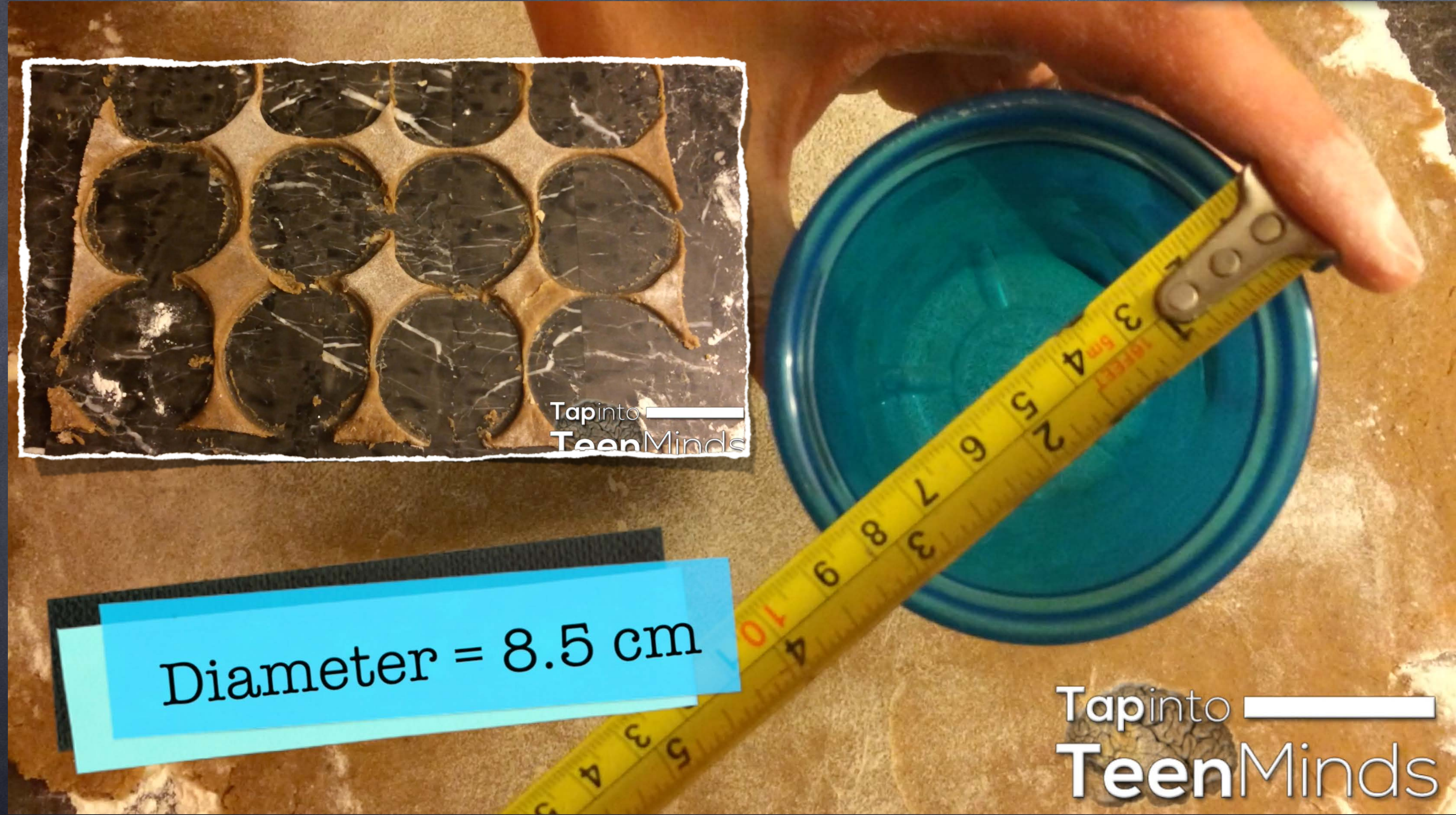


Tap into 
TeenMinds

Cookie Cutter



Cookie Cutter



Diameter = 8.5 cm



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My Next Step in Redefining Mathematics Education

The collage features three main elements on a grid background:

- Left:** The words "STUDENT MATH" in large, orange, bubbly letters.
- Center:** A screenshot of a blog post titled "Jenna's Math" dated Thursday, 10 October 2013. The post is titled "3.3 Making Predictions with Scatter Plots (Continued)". It includes a table of data and a scatter plot with a line of best fit. The data table is as follows:

Days Absent	Mark (%)
2	81
0	73
12	50
7	63
1	77
22	38
10	44
3	95
3	56
4	71
8	67
0	78
9	61
16	40

The scatter plot shows a negative correlation between days absent and mark percentage. Handwritten labels "Mark" and "Days Absent" are present on the axes.
- Right:** A line graph on grid paper showing an upward curve. The y-axis is labeled "# OF BLOG POSTS" and the x-axis is labeled "UNDERSTANDING VS BLOGGING".

www.MathBlogs.ca

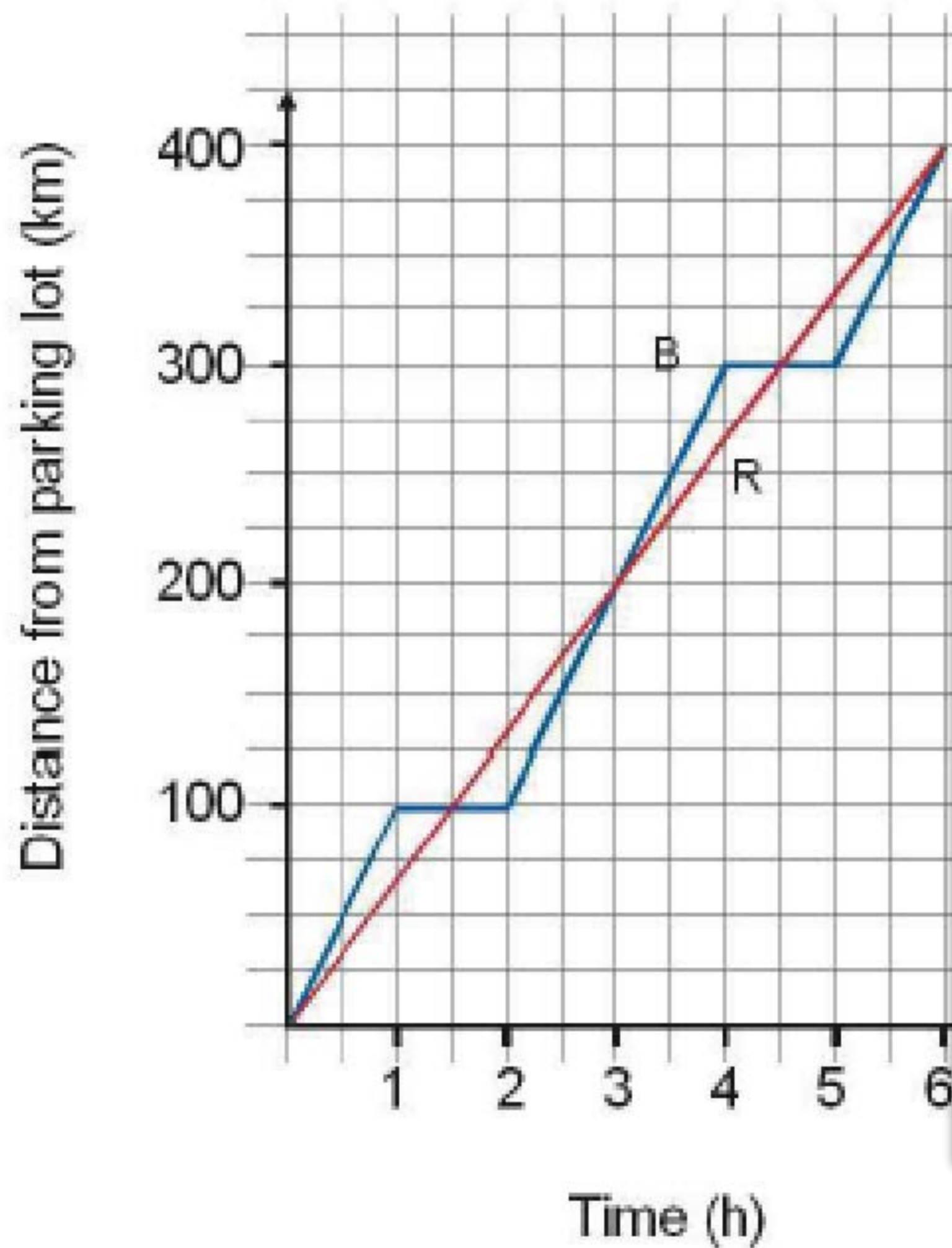


Learning Goals Based Blogging

I can describe a situation that would represent the graph of a two-variable relationship.

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“Both cars got to the final destination at the same time, because although the blue car took a couple of breaks and the red car drove straight there, the lines on the graph both meet at the same point in time at the end.” - Jenna

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STUDENT MATH BLOGS

UNDERSTANDING VS BLOGGING

UNDERSTANDING

OF BLOG POSTS

GET A FREE MATH BLOG OR ADD YOUR EXISTING ONE!

Register for a **FREE** Wordpress Math Blog with a customizable domain name:
YOURNAME.mathblogs.ca

Already have a blog? **ADD IT!**

[> LEARN MORE!](#)

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Pick Your Own Domain

The screenshot shows the homepage of Mathlete Blogs.com. At the top left is the logo "Mathlete Blogs.com". At the top right, it says "Currently Powering 60 Blogs" and "Get Blogging! LOGIN or REGISTER", with the "REGISTER" link circled in red. A navigation menu below the logo includes "Home", "How It Works", "Create a Blog", "Add a Blog", "View Blogs", and "Contact". The main content area features a large graphic with the text "STUDENT MATH BLOGS" and a line graph titled "UNDERSTANDING VS BLOGGING". The graph's y-axis is labeled "UNDERSTANDING" and the x-axis is labeled "# OF BLOG POSTS". A red arrow points from the "REGISTER" link to the graph. To the right of the graph is a call-to-action box that says "GET A FREE MATH BLOG OR ADD YOUR EXISTING ONE!", "Register for a FREE Wordpress Math Blog with a customizable domain name: YOURNAME.mathblogs.ca", "Already have a blog? ADD IT!", and a button that says "> LEARN MORE!".

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Resources & Feedback

Please complete the survey
to help me improve

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Your feedback is appreciated!



Reach Out!

Kyle Pearce



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kyle.pearce@outlook.com



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