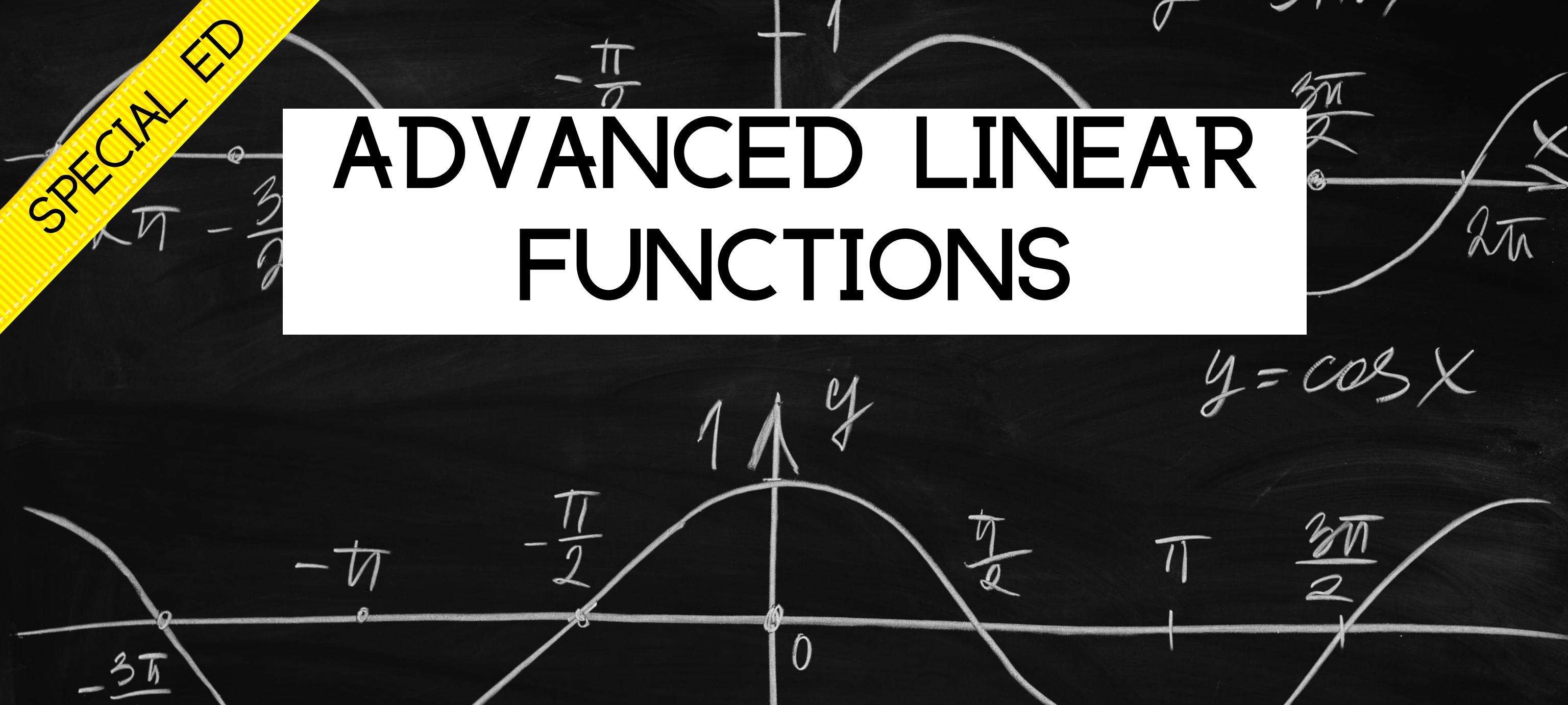


SPECIAL ED

ADVANCED LINEAR FUNCTIONS



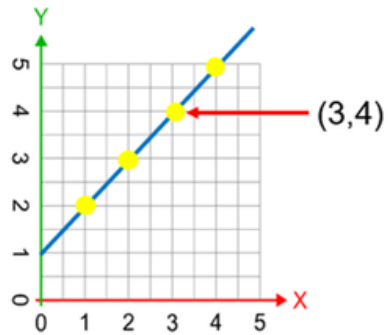
INCLUDES GOOGLE SLIDES

This unit was created with this guy in mind. He has autism and an intellectual disability. He is a non-reader, has a very short attention span, and has a few foundational math skills. With some support, he is able to do this unit and enjoys the challenge. He is my tester!!



Advanced Functions Unit

By
Christa Joy
Special Needs for Special Kids



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Table of Contents

Pages	Activity
4-39	More on Functions book
40-42	Vocabulary board
43-51	Vocabulary cards
52-68	Vocabulary cut & paste
69-79	Matching function tables to graphs
80-86	Graphing data from a function table
87-91	Viable Ordered Pairs
92-117	More on Slopes book
118-131	Determining the slope worksheets
132-159	Intercepts and Scatter plots book
160-170	Identify x and y intercept
171-175	Predicting correlations and graphing data
176-186	Vocabulary Sudoku
187-204	Assessment
205-206	Terms of Use

Also included with this unit is a power point show that is narrated and has automatic advancement of slides. Let me know in the feedback if this was helpful ☺

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This unit has 22 days of activities that will guide students through more calculations with function graphs and function tables. The unit is separated into 2 files, one in color and one in black and white.

This is an advanced unit where students will interpret information in function tables, and do some graphing and simple calculations. The introductory unit lays the foundation to understand what these tables and graphs contain.

Advanced

ADVANCED Functions Unit

Lesson Plan

Preparation

- Print out a vocabulary board for each student to use throughout unit
 - Laminate or place in page protector
- Book
 - Print out, laminate, and bind
 - OR your students can listen to the pre-recorded version
- Vocabulary cards
 - Print out a set of cards onto cardstock and laminate
 - Make one set for each student and also one for the teacher to use in I Spy games
 - You may also want to use the vocabulary cards from the introduction to functions unit (click [LIFE](#) to check it out)

Preassessment (do day 1 before st

- Choose the form of the as
- Give the assessment to ass
- I cannot emphasize enoug growth, this preassessment

Teaching Tips

1. *Color Coding*: this is a rea activity. Outline or color the corresponding picture task.
 - a. For more info, read <https://specialneedsdifferentiation/>
 - b. I also have a blog p <https://specialneeds3-ways-easily-and-e>
2. *Make you own copies of i* yesterday. For that reasor
 - a. I often complete th that I could use yea

Day 2

Activity	Notes	Materials
Read or listen to a recording of the book: More on Functions (15 minutes)	<ul style="list-style-type: none"> • Read through the story, asking lots of questions • Continue to make connections between book and vocabulary board 	<ul style="list-style-type: none"> • Book #1: More on Functions • Vocabulary board
Vocabulary cards I Spy Game (10 minutes)	<ul style="list-style-type: none"> • I play this game see description on day 2 • Today, try to give clues about the card your student needs to find <ul style="list-style-type: none"> ◦ Read definition ◦ Show real photo that relates to card from book ◦ Describe the picture • Discuss relevant points on the card • You can also play this game in this manner having them find the symbol on their vocabulary board <p>**You can also use the cards from the Introductory Functions Unit</p>	<ul style="list-style-type: none"> • Vocabulary cards (student set and teacher set) • Vocabulary board
Worksheet Review (5 minutes)	<ul style="list-style-type: none"> • Review one or <u>both of the worksheets</u> completed yesterday 	<ul style="list-style-type: none"> • Worksheets completed yesterday
Worksheet practice #1 (10 minutes)	<ul style="list-style-type: none"> • Do one of the worksheets from the set: Matching Functions to graphs • Choose the best version depending on the learning level of your students (cut and paste or draw a line to match) • Add color coding if needed • Students complete the worksheet • Make connections to the book as necessary 	<ul style="list-style-type: none"> • Worksheet • Scissors • Glue
Worksheet practice #2 (10 minutes)	<ul style="list-style-type: none"> • Do one of the worksheets from the set: Viable Ordered Pairs • Add color coding if needed • Students complete the worksheet • Make connections to the book as necessary 	<ul style="list-style-type: none"> • Worksheet • Scissors • Glue
Sharing (10 minutes)	<ul style="list-style-type: none"> • Each student shares one of their finished worksheets with the group using the communication method of their choice 	<ul style="list-style-type: none"> • Completed worksheets

Quick Look

Day	Activity	Day	Activity	Day	Activity
1	<ul style="list-style-type: none"> • Book 1 • Vocab cards activity • Worksheet practice 	8	<ul style="list-style-type: none"> • Book 1 • Vocab cards activity • Worksheet practice 	15	<ul style="list-style-type: none"> • Book 3 • Vocab cards activity • Worksheet practice
2	<ul style="list-style-type: none"> • Book 1 • Vocab cards activity • Worksheet practice 	9	<ul style="list-style-type: none"> • Book 1 • Vocab cards activity • Worksheet practice 	16	<ul style="list-style-type: none"> • Book 3 • Vocab cards activity • Worksheet practice
3	<ul style="list-style-type: none"> • Book 1 • Vocab cards activity • Worksheet 	10	<ul style="list-style-type: none"> • Book 1 • Vocab cards activity • Worksheet practice 	17	<ul style="list-style-type: none"> • Book 3 • Vocab cards activity • Worksheet practice
			<ul style="list-style-type: none"> • Book 2 • Vocab cards activity • Worksheet practice 	18	<ul style="list-style-type: none"> • Book 2 • Vocab cards activity • Worksheet practice
			<ul style="list-style-type: none"> • Book 2 • Vocab cards activity • Worksheet practice 	19	<ul style="list-style-type: none"> • Book 2 • Vocab cards activity • Worksheet practice
			<ul style="list-style-type: none"> • Book 2 • Vocab cards activity • Worksheet practice 	20	<ul style="list-style-type: none"> • Book 2 • Vocab cards activity • Worksheet practice
			<ul style="list-style-type: none"> • Book 2 • Vocab cards activity • Worksheet practice 	21	<ul style="list-style-type: none"> • Book 2 • Vocab cards activity • Worksheet practice
				22	<ul style="list-style-type: none"> • Book 2 • Vocab cards activity • Worksheet practice

The lesson plans contain:

- Overall tips for teaching students with significant needs
- A quick look at what you will do each day
- Detailed instructions on how that day's lesson should run

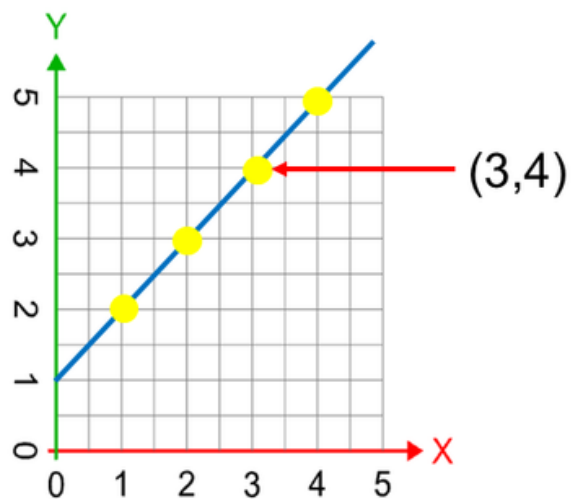
This unit covers:

- Interpreting function graphs
- Graphing data from a function table
- Simple calculations of slope
- Identifying x and y intercepts
- Predicting and graphing correlations from a function table

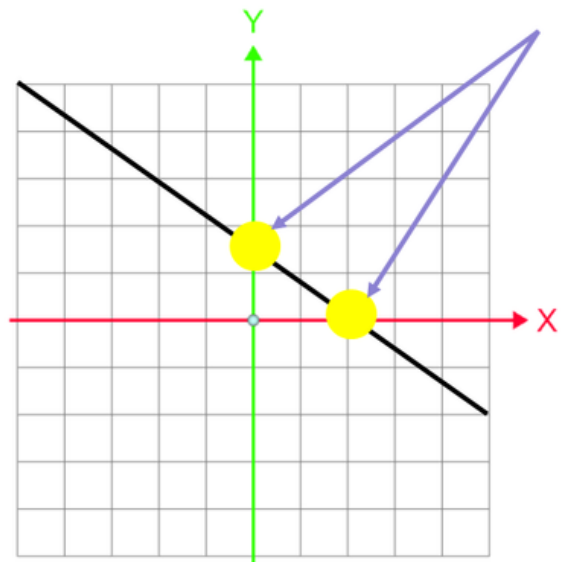
Includes vocabulary activities and assessments.

These input, output values are referred to as **ordered pairs**.

X INPUT	y OUTPUT
1	2
2	3
3	4
4	5



Where the function crosses an axis when drawn on a graph is the intercept.



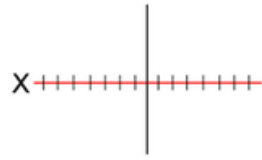
There are 3 books in this unit.

1. More on Functions
2. More on Slopes
3. Intercepts and Scatter Plots

- PowerPoint
- voice-recorded PPT
- mp4 movie format

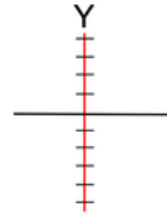
X-axis

Measurement line that goes across the page.



Y-axis

Measurement line that goes from top to bottom on the page.



ordered pair

Input value and correlated output value. Point on the graph.



rise

How far up you go from one point to another.



domain

List of input values that corresponds to locations on the X axis.

INPUT	OUTPUT
1	5
2	4
3	3
4	2

range

List of input values that corresponds to locations on the Y axis.

INPUT	OUTPUT
1	5
2	4
3	3
4	2

run

How far across the graph from one point to another.



slope intercept form

Special formula that tells you information about a line, including slope.

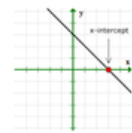


There are 13 vocabulary cards students will use every day for a group activity. There is also a cut and paste activity.

intercept



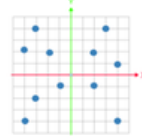
X-intercept



Y-intercept



Scatter plot



Cut apart and match pictures with definition.

A collection of 13 small cards for a matching activity:

- Graph of a line with a blue arrow pointing to the y-intercept.
- Illustration of two hands shaking.
- Equation $F = m(x) + b$.
- Table with 'INPUT' and 'OUTPUT' columns and values 1-4.
- Stick figure holding a red ball.
- Vertical axis labeled 'Y'.
- Graph of a single yellow point.
- Horizontal axis labeled 'X'.
- Green arrow pointing up.
- Stick figure climbing stairs.
- Scatter plot with blue dots.
- Stick figure running with a red arrow pointing right.
- Table with 'INPUT' and 'OUTPUT' columns and values 1-4.
- Graph of a line with a blue arrow pointing to the x-intercept.

Cut out the graphs below and match them to the correct function table.

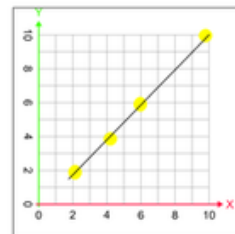
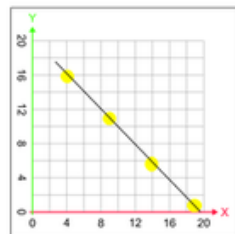
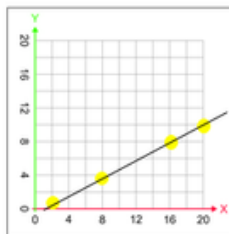
INPUT (X)	OUTPUT(Y)
2	2
4	4
6	6
10	10



INPUT (X)	OUTPUT(Y)
2	1
8	4
16	8
20	10



INPUT (X)	OUTPUT(Y)
4	16
9	11
14	6
19	1



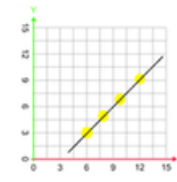
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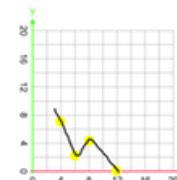
Match table to graph

Draw a line and match the function table its graph.

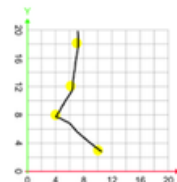
INPUT (X)	OUTPUT(Y)
0	1
1	2
2	3
3	4



INPUT (X)	OUTPUT(Y)
2	9
4	7
6	5
8	3



INPUT (X)	OUTPUT(Y)
6	3
8	5
10	7
12	9



There are 10 worksheets where students will match the graph to the function table it came from.

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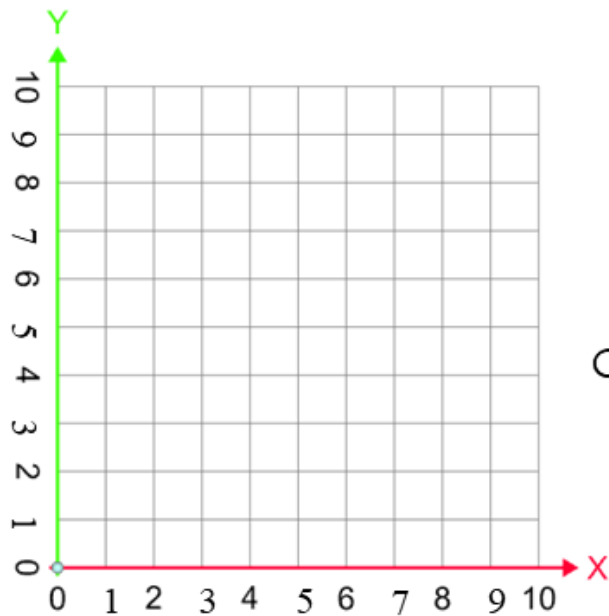
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Graphing data from a function table

Plot the following inputs and outputs from the function table onto the graph, and answer the questions.

INPUT (X)	Output (Y)
4	4
6	5
8	6
10	7

Write the order pairs:



Circle the relationship:

positive

negative

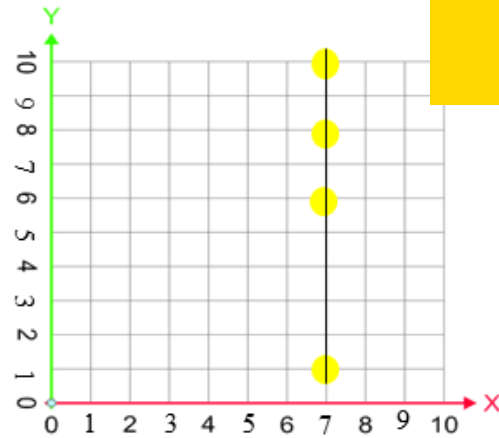
none

There are 5 worksheets where students will graph the linear function using the data in the function table. There are guiding questions to help students find the correct information to use.

Look at the tables and graphs below. Choose which ordered pair would be a possible solution for the graph.

Find viable ordered pairs

INPUT (X)	OUTPUT (Y)
7	10
7	8
7	6
7	1



3,5

10,10

7,4

INPUT (X)	OUTPUT (Y)
5	1
7	3
8	4
10	6



6,2

2,10

8,9

There are 5 worksheets where students will look at a linear function graph created from a function table. There are several ordered pairs. Students choose the one that would be part of the graph but is not shown.

rise
run

Look at each graph, and using the determine the slope.



Slope = $\frac{\square}{\square}$

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Slope

In each problem identify the slope in the slope intercept form ($y = mx + b$). You can color it in or circle the right answer.

1. $Y = x + 7$
 1 y 7 x

2. $Y = 6x + 5$
 y 5 6 b

3. $Y = 8x + 8$
 x 8 y 0

4. $Y = x + 1$
 y 0 p 1

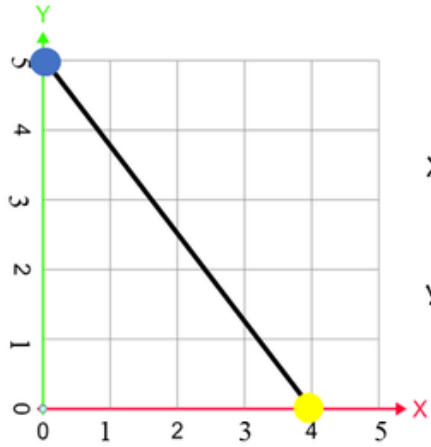
5. $Y = 2x + 4$
 4 y x 2

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Next students will practice calculating slope either from a graph or using the slope-intercept form.

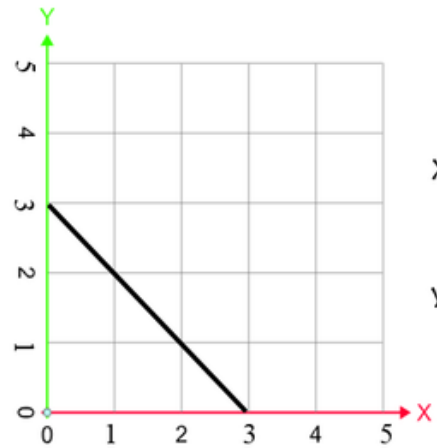
x and y intercepts

Identify the x and y intercept on each graph.



X intercept =

y intercept =

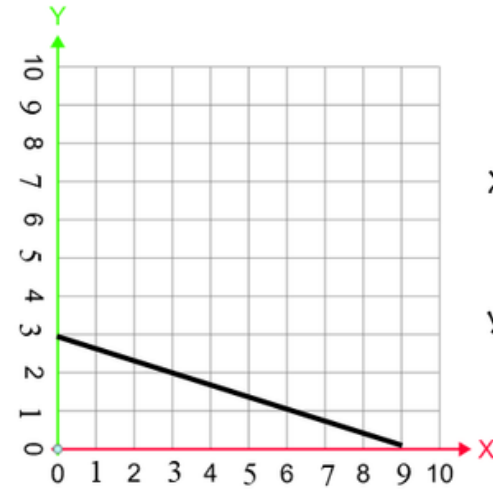


X intercept =

y intercept =

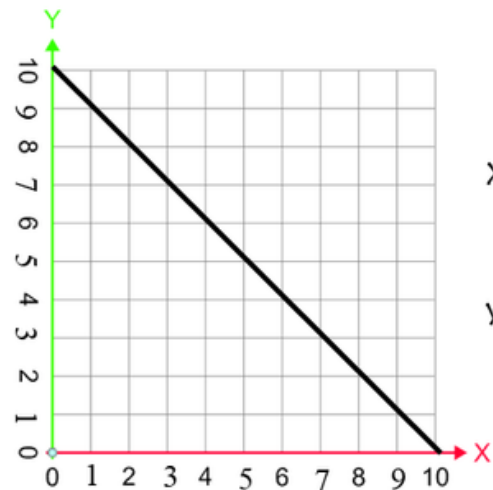
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Identify the x and y intercept on each graph.



X intercept =

y intercept =



X intercept =

y intercept =

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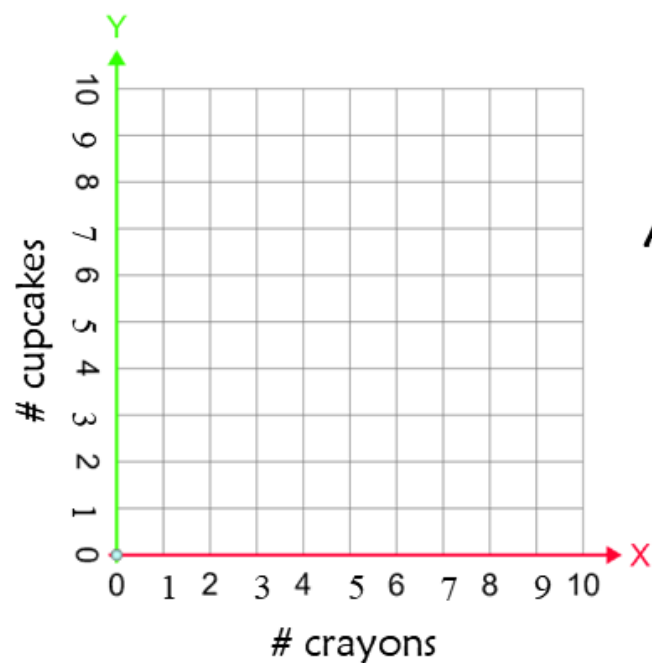
Students will practice finding the x and y intercepts from a linear function drawn on a graph. There are 9 practice worksheets.

Putting it all together

1. Look at the data table ****especially the labels****
2. Predict what you think the correlation will be (circle your choice)
3. Graph the data points
4. Check your prediction and circle the correlation

# crayons	# cupcakes
10	6
3	10
8	2
1	1

Predict the relationship:



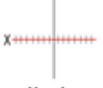





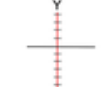








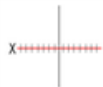






Actual relationship:











Finally, students will use all they have practiced looking at a function table, predict the relationship, plot the ordered pairs and draw the linear function graph to check their prediction.

Advanced Functions

		 run	 slope	 X-axis	 Scatter plot
 slope	 X-axis	 Scatter plot	 rise	 Y-axis	
 run	 Scatter plot		 Y-axis		 slope
	 rise				 X-axis
	 slope			 run	
 X-axis	 run		 Scatter plot	 slope	 Y-axis

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Advanced Functions


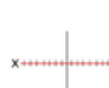












 slope	 correlation		
 Scatter plot	 intercept		
			 intercept
	 Scatter plot	 slope	 correlation

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There is a Sudoku puzzle in this unit as well. This is a great way to work with the new vocabulary!!

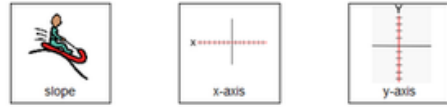
There are 2 versions (6x6 and 4x4) plus answer keys.

Place the following images in the empty squares on the previous page, completing the sudoku puzzle.

 x-axis	 x-axis	 y-axis	 y-axis	 y-axis
 rise	 rise	 rise	 rise	 run
 run	 slope	 scatter plot	 scatter plot	



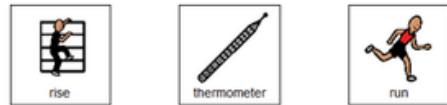
1. The domain relates to values on the:



2. Values on the y axis are called the:



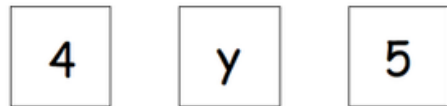
3. This tells you far UP you need to go to get to the next dot:



4. The RUN tells you how far you have



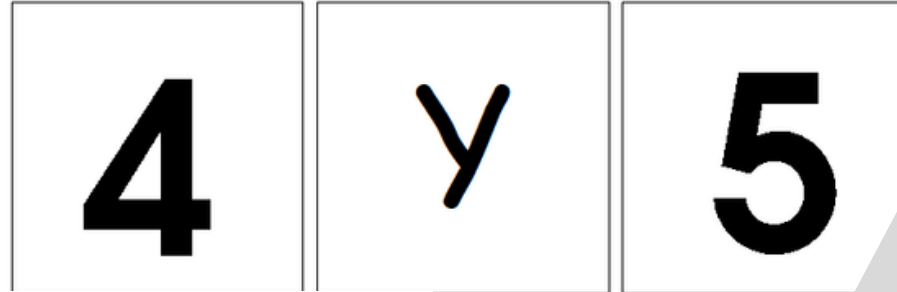
5. What is the slope in this formula $y = 4x + 5$



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Print onto cardstock or mount on index cards. Cut pictures apart and show student answer choices for each question.

Q 5, 10



Version 3

- The domain relates to values on the:
 - Slope
 - X-axis
 - Y-axis
- Values on the y axis are called the:
 - Domain
 - Golf course
 - Range
- This tells you far UP you need to go to get to the next dot:
 - Rise
 - Thermometer
 - Run
- The RUN tells you how far you have to go:
 - Under
 - Across
 - Over
- What is the slope in this formula $y = 4x + 5$?
 - 4
 - Y
 - 5
- We use this tool to tell if there is a relationship between data points:
 - Tape measure
 - Scatter plot
 - Scale

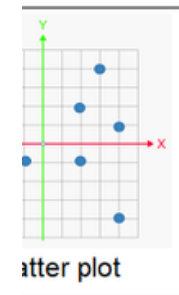
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Covers main ideas

FINALLY the assessment!! There are 3 versions.

- 10 questions with 3 picture choices for each question
- cut out the answer choices and glue them on index cards
- traditional multiple choice

Answer key included.



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This resource comes in a zipped folder. You will need to unzip the folder to access all the contents which include:

- 22 days of lesson plans
- Color version of activities
- Black and white version of activities
- More on Functions book (PowerPoint) to use with activities
- More on Slope book (PowerPoint) to use with activities
- Intercepts and Scatter Plots book (PowerPoint) to use with activities
- Digital versions of activities



Also digital activities

There are a lot of real-life examples of function machines, like a soda machine, the turn style at the subway station, and even a summer job.

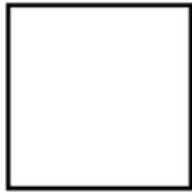


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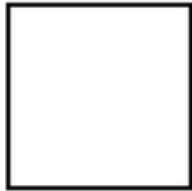
Watch the movie on Functions

This unit also has digital activities. There is a movie version of all 3 books students can listen to read aloud.

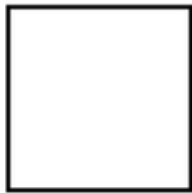
INPUT (X)	OUTPUT(Y)
2	2
4	4
6	6
10	10



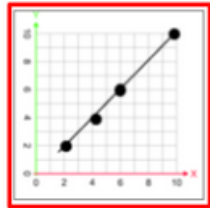
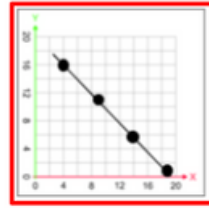
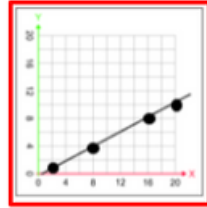
INPUT (X)	OUTPUT(Y)
2	1
8	4
16	8
20	10



INPUT (X)	OUTPUT(Y)
4	16
9	11
14	6
19	1



Match each graph below to the correct function table.



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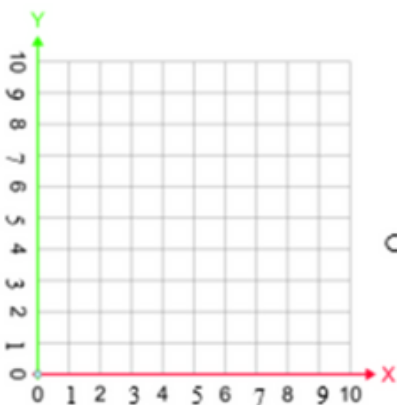
Great for review

The digital activities have students mainly click and drag their answers. There is some typing involved in the set without differentiation. There are 2 sets of 56 slides.

INPUT (X)	Output (Y)
2	10
4	8
8	4
10	2

Write the order pairs:

<input type="text"/>	,	<input type="text"/>
<input type="text"/>	,	<input type="text"/>
<input type="text"/>	,	<input type="text"/>
<input type="text"/>	,	<input type="text"/>



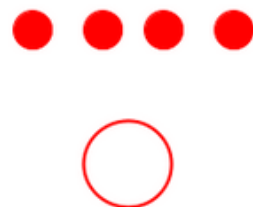
Circle the relationship:

positive

negative

none

1. Type in the ordered pairs.
2. Plot the following inputs and outputs from the function table onto the graph using the dots below.
3. Circle the relationship.

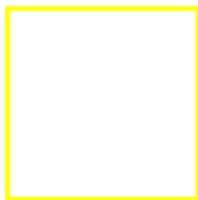


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INPUT (X)	OUTPUT(Y)
5	20
8	17
11	14
14	11



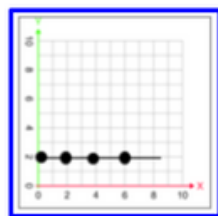
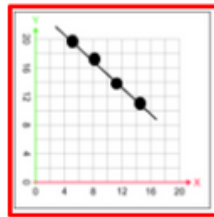
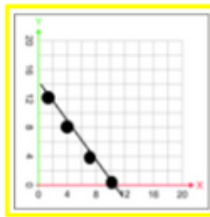
INPUT (X)	OUTPUT(Y)
1	12
4	8
7	4
10	0



INPUT (X)	OUTPUT(Y)
6	2
4	2
2	2
0	2



Match each graph below to the correct function table.



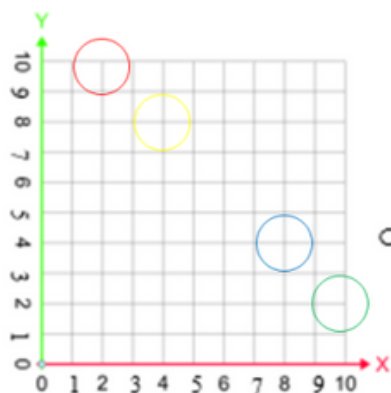
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Perfect for every learning level

The second set of slides is differentiated using color. There is no typing in this set of slides.

INPUT (X)	Output (Y)
2	10
4	8
8	4
10	2

Write the order pairs:

 ,
 ,
 ,
 ,


Circle the relationship:

positive

negative

none

- Type in the ordered pairs.
- Plot the following inputs and outputs from function table onto the graph using the dots below.
- Circle the relationship.

4,8

2,10

8,4

10,2



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