Today's Materials

- Chromebook
- Pen/pencil

___

Warm Up

As you come in and get settled, follow these instructions:

1 Find your seat

2 Take out your Chromebook.

3 In Pear Deck answer, "What was your main takeaway from the homework LESSON 25?"

Describing and Graphing Situations

Lesson 1

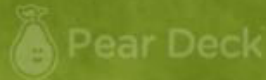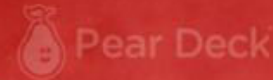# 1.1: Bagel Shop (15 minutes)

Bagels are DELICIOUS!

True

False

Explain...how the shopkeeper, Jada, Priya, and Han could all be right.

FRESH BAGELS!

1 bagel	$ 1.25
6 bagels	$ 6.00
9 bagels	$ 8.00
12 bagels	$ 10.00

A customer at a bagel shop is buying 13 bagels.

The shopkeeper says, "That would be $16.25."

Jada, Priya, and Han, who are in the shop, all think it is a mistake
Jada says to her friends, "Shouldn't the total be $13.25?"
Priya says, "I think it should be $13.00."
Han says, "No, I think it should be $11.25."

For this activity you will…

Step One
Write down "Best Price" in the header of the second column

Step Two
Complete the table.

Step Three
Compare with your teammates

number of bagels	best price

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number of bagels	shopkeeper's price	Jada's price	Priya's price	Han's price
1	1.25			
2	2.50			
3	3.75			
4	5.00			
5	6.25			
6	7.50	6.00		
7	8.75	7.25		
8	10.00	8.50		
9	11.25	9.75	8.00	
10	12.50	11.00	9.25	
11	13.75	12.25	10.50	
12	15.00	12.00	11.75	10.00
13	16.25	13.25	13.00	11.25

number of bagels	best price
1	1.25
2	2.50
3	3.75
4	5.00
5	6.25
6	6.00
7	7.25
8	8.50
9	8.00
10	9.25
11	10.50
12	10.00
13	11.25

'Number of Bagels' and 'Price' do not form a function but…
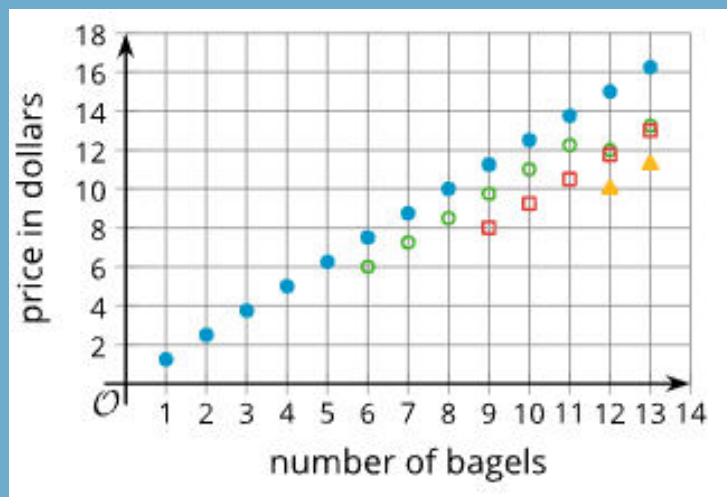
… 'Number of Bagels' and 'Best Price' do form a function.

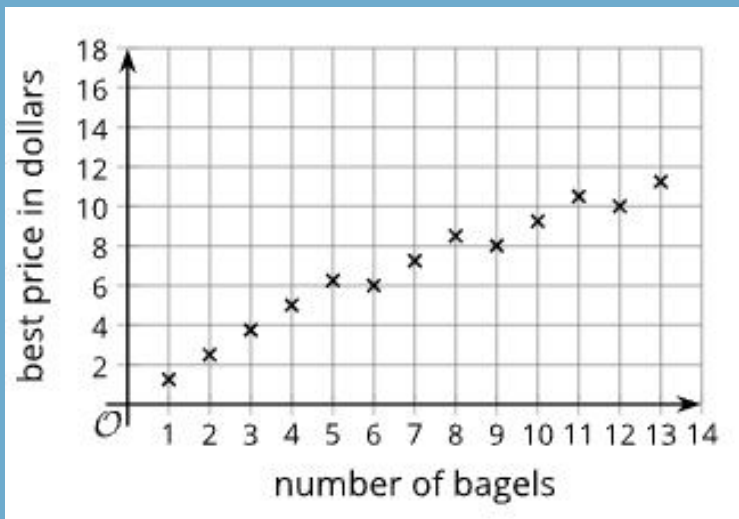Why is this? What do you recall about functions?

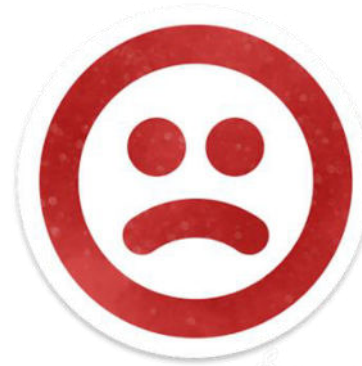# A function assigns one output to each input.

Because there are multiple possible prices when the number of bagels is 6 or greater, price is not a function of the number of bagels bought.

Because there is only one best price for a particular number of bagel, best price is a function of the number of bagels bought.

Circle how you are feeling about the meaning of a function:

Let's look at some fun functions around us and try to describe them!

Today's Goals

I can explain when a relationship between two quantities is a **function**.

I can identify **independent** and **dependent variables** in a function, and use words and graphs to represent the function.

I can make sense of descriptions and graphs of functions and explain what they tell us about situations.
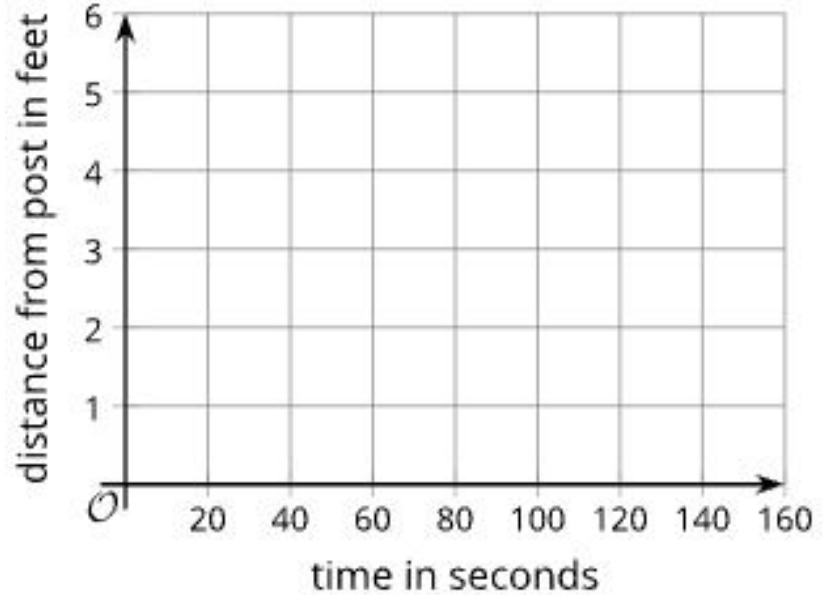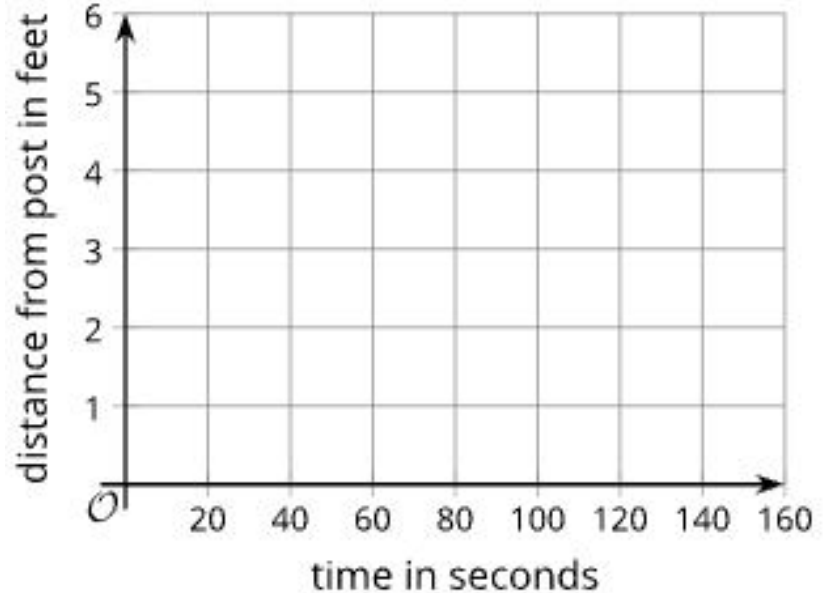
1.2: Be Right Back! (10 minutes)

1.2: Be Right Back! Day 1

A dog owner tied his dog's 5-foot-long leash to a post outside a store while he ran into the store to get a drink. Each time, the owner returned within minutes.

The dog's movement each day is here.
- The dog walked around the entire time while waiting for its owner.
- The dog was 1.5 feet away from the post when the owner left.
- 60 seconds after the owner left, the dog was 4 feet from the post.

Sketch a graph that could represent the dog's distance from the post, in feet, as a function of time, in seconds, since the owner left.

1.2: Be Right Back! Day 2

A dog owner tied his dog's 5-foot-long leash to a post outside a store while he ran into the store to get a drink. Each time, the owner returned within minutes.

The dog's movement each day is here.
- **The dog walked around for the first minute, and then laid down until its owner returned.**
- The dog was 1.5 feet away from the post when the owner left.
- 60 seconds after the owner left, the dog was 4 feet from the post.

Sketch a graph that could represent the dog's distance from the post, in feet, as a function of time, in seconds, since the owner left.

1.2: Be Right Back! Day 3

A dog owner tied his dog's 5-foot-long leash to a post outside a store while he ran into the store to get a drink. Each time, the owner returned within minutes.

The dog's movement each day is here.
- The dog tried to follow its owner into the store but was stopped by the leash. Then, it started walking around the post in one direction. It kept walking until its leash was completely wound up around the post. The dog stayed there until its owner returned.
- The dog was 1.5 feet away from the post when the owner left.
- 60 seconds after the owner left, the dog was 4 feet from the post.
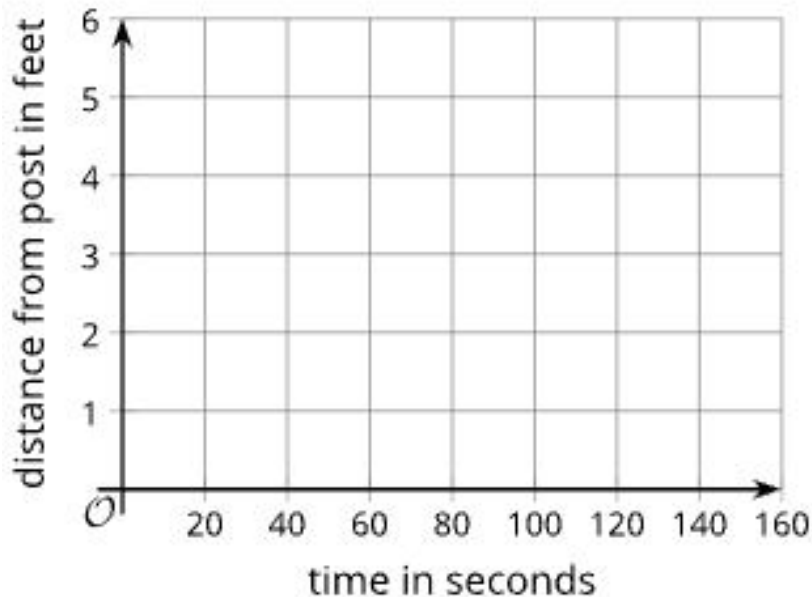
Function
A function assigns one output to each input.

A quantity that is an **input** for a function is called an **independent variable**.

A quantity that is an **output** is called a **dependent variable**.

In this case, time is independent and distance from the post is dependent.

Distance from the post is a function of time.
(Distance from the post depends on time.)
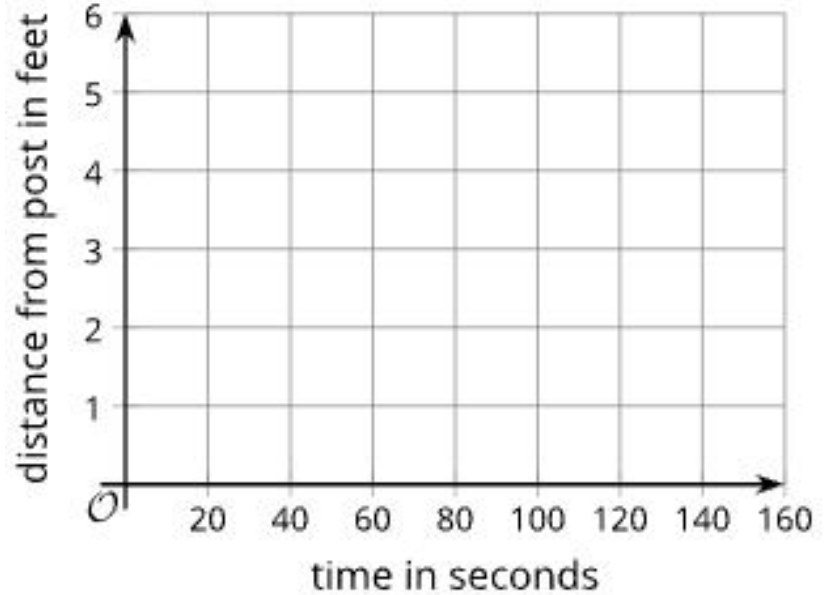
Think of a question your classmates might have.
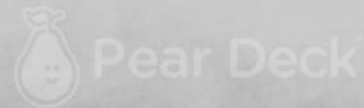
1.3: Talk about a Function (10 minutes)

1.3: Talk about a Function

- time, in seconds, since the dog owner left and the total number of times the dog has barked

1. Write a sentence of the form "_____ is a function of _____."

1.3: Talk about a Function

- time, in seconds, since the dog owner left and the total number of times the dog has barked

2. In the function, which variable is independent? Which one is dependent?

- time, in seconds, since the dog owner left and the total number of times the dog has barked

Sketch a possible graph of the relationship on the coordinate plane. Be sure to label and indicate a scale on each axis.

- time, in seconds, since the owner left and the total distance, in feet, that the dog has walked while waiting

1. Write a sentence of the form "_____ is a function of _____."

1.3: Talk about a Function

- time, in seconds, since the owner left and the total distance, in feet, that the dog has walked while waiting

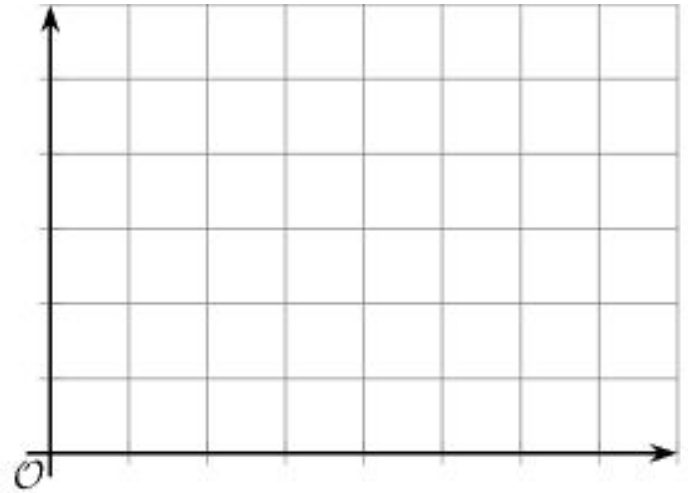2. In the function, which variable is independent? Which one is dependent?

- time, in seconds, since the owner left and the total distance, in feet, that the dog has walked while waiting

Sketch a possible graph of the relationship on the coordinate plane. Be sure to label and indicate a scale on each axis.

In one minute, write the most important thing from today's lesson.

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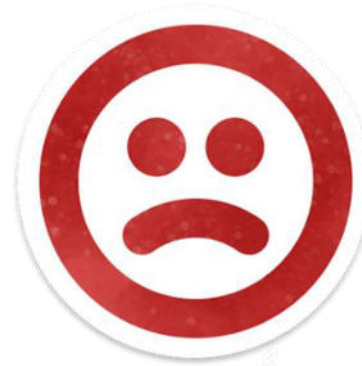
Most Important!

A relationship between two quantities is a **function** if there is exactly one output for each input.

We call the <u>input</u> the **independent variable** and the <u>output</u> the **dependent variable**.

Crushed it.

Circle how you are feeling about the meaning of a function:

1.4: The Backyard Pool

Cool Down: 5 minutes