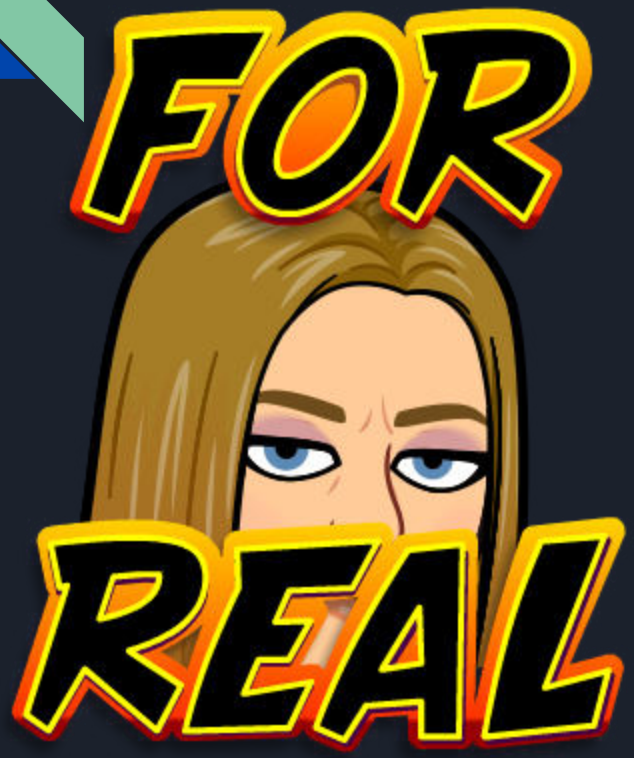


Today's Materials

➔device

➔calculator

➔pencil

Interpreting & Using Function Notation

Lesson 3

Observing a Drone

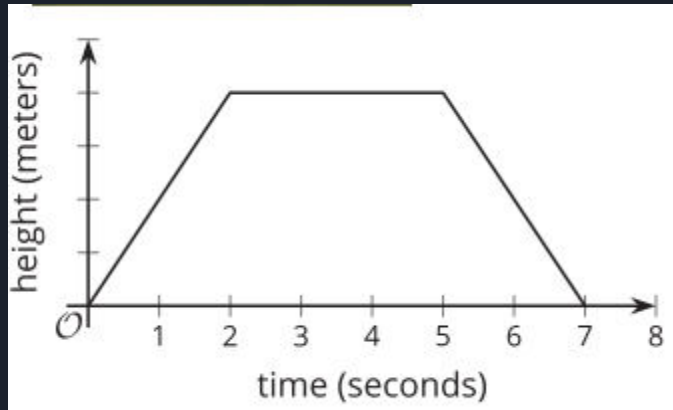
Warm Up

Pg

Here is a graph that represents function , which gives the

height of a drone, in meters, seconds after it leaves the

ground.



Decide which function value is greater.

1. $f(0)$ or $f(4)$

2. $f(2)$ or $f(5)$

3. $f(3)$ or $f(7)$

4. $f(t)$ or $f(t+1)$

1.

2.

3.

4.

Today's Goals

- ❏ I can describe the connections between a statement in function notation and the graph of the function.
- ❏ I can use function notation to efficiently represent a relationship between two quantities in a situation.

via Best Friends Animal Society on GIPHY

- ❏ I can use statements in function notation to sketch a graph of a function.

Let’s think about our favorite thing, smartphones.

via Geo Law on GIPHY

Smartphones

Activity 3.2

Pg

Students choose an option

1,000,000 = 1 million

2,000,000 = 2 million

32, 000, 000 =

264,100,000= ***need a hint**?

2,364,000,000=
or

The function ***P*** gives the number of people, in millions, who own a smartphone, *t* years after year 2000.

1. What does each equation tell us about smartphone ownership?

a. $P(17) = 2{,}320$

b. $P(-10) = 0$

Students, write your response!

Work with your team on #2-4 in your packet or on a whiteboard.

If you do your work on a WB copy it into your packet.

The function P gives the number of people, in millions, who own a smartphone, t years after year 2000.

2. **Use function notation to represent each statement.**

a. In 2010, the number of people who owned a smartphone was 296,600,000.

b. In 2015, about 1.86 billion people owned a smartphone.

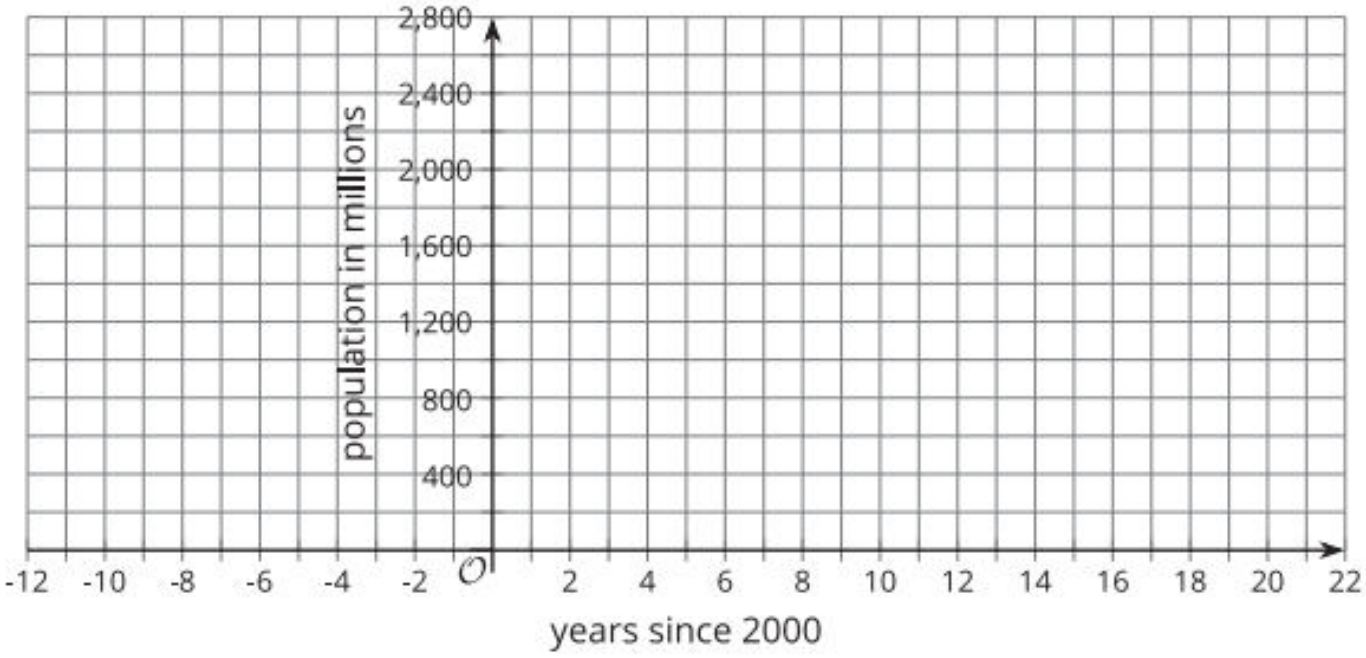
Students, write your response!

3. Mai is curious about the value of t when $P(t) = 1{,}000$.

a. What would the value of t tell Mai about the situation?

b. Is 4 a possible value of here?

4. Use the information you have so far to sketch a graph of the function.

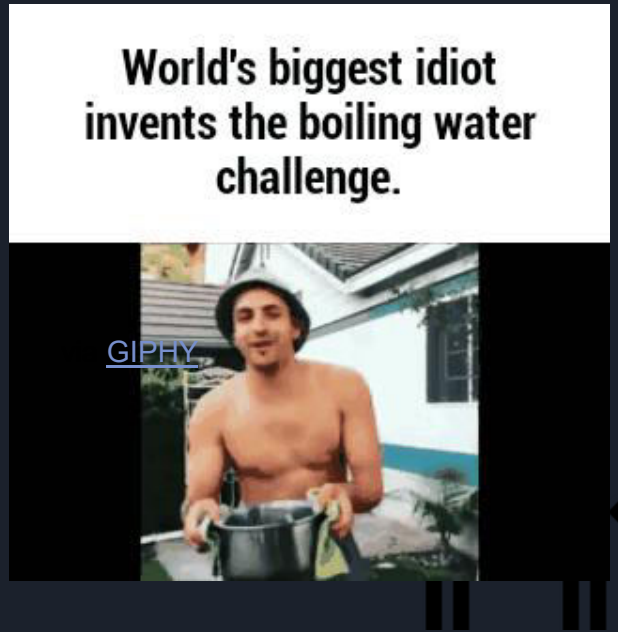


Students, draw anywhere on this slide!

Boiling Water

Activity 3.3

- Take Turns



Pg

The function W gives the temperature, in degrees Fahrenheit, of a pot of water on a stove, minutes after the stove is turned on.

1. Take turns with your partner to explain the meaning of each statement in this situation.

$W(0) = 72$ means.....

When it's your partner's turn, listen carefully to their interpretation. If you disagree, discuss your thinking and work to reach an agreement. Write your interpretation down in your packet!

a. The temperature when the stove was turned on was 72 degrees Fahrenheit.

b. The temperature after 5 minutes was warmer than the temperature after 2 minutes.

c. The temperature of the water after 10 minutes was 212 degrees Fahrenheit.

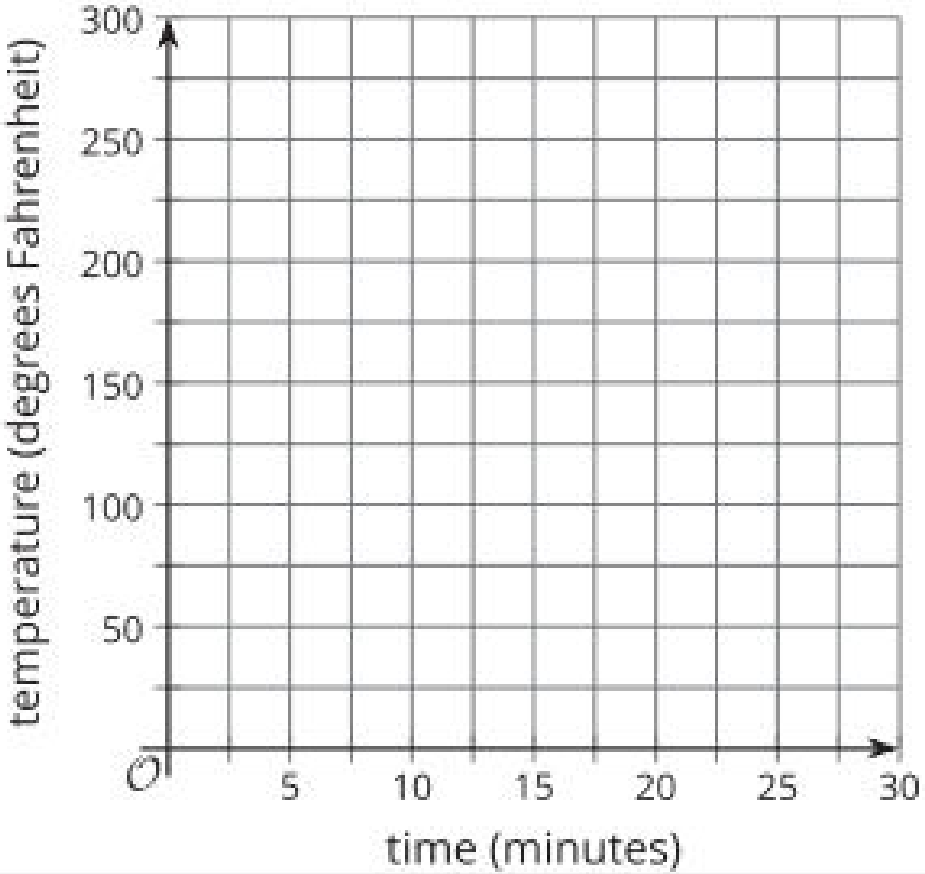
d. The temperature of the water was the same after 10 minutes and after 12 minutes.

e. The temperature after 15 minutes was higher than the temperature after 30 minutes.

f. The temperature when the stove was turned on was lower than the temperature 30 minutes later.

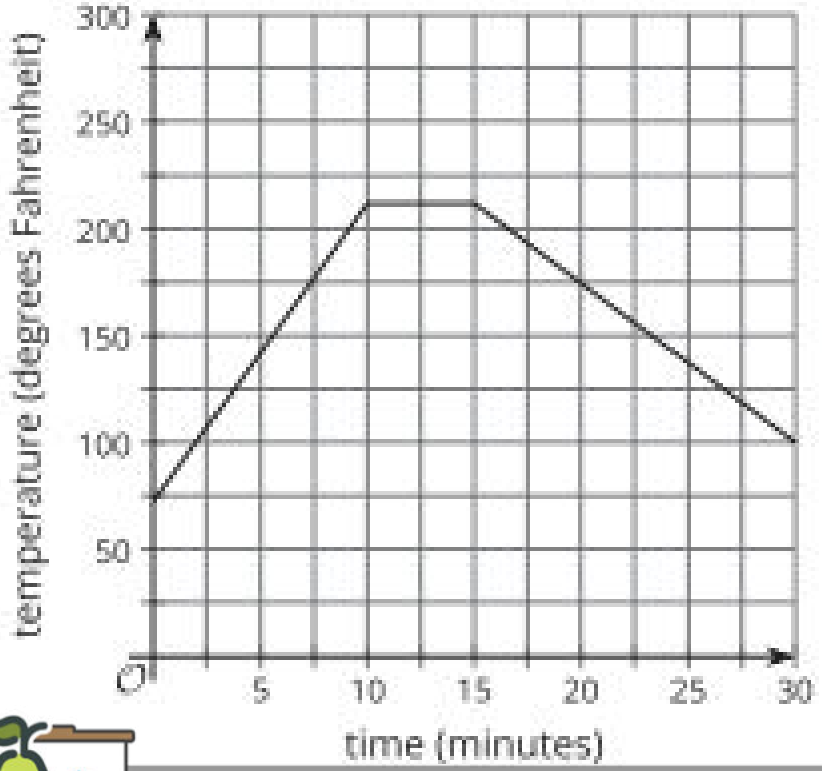
2. All statements from #1 are true. Sketch a *possible* graph of function *W.*

Work with your group to sketch the graph in your packet. Once you agree draw it on this slide



Students, draw anywhere on this slide!

Circle the part of the graph that connects to each statement and label the circle with a, b, or c.

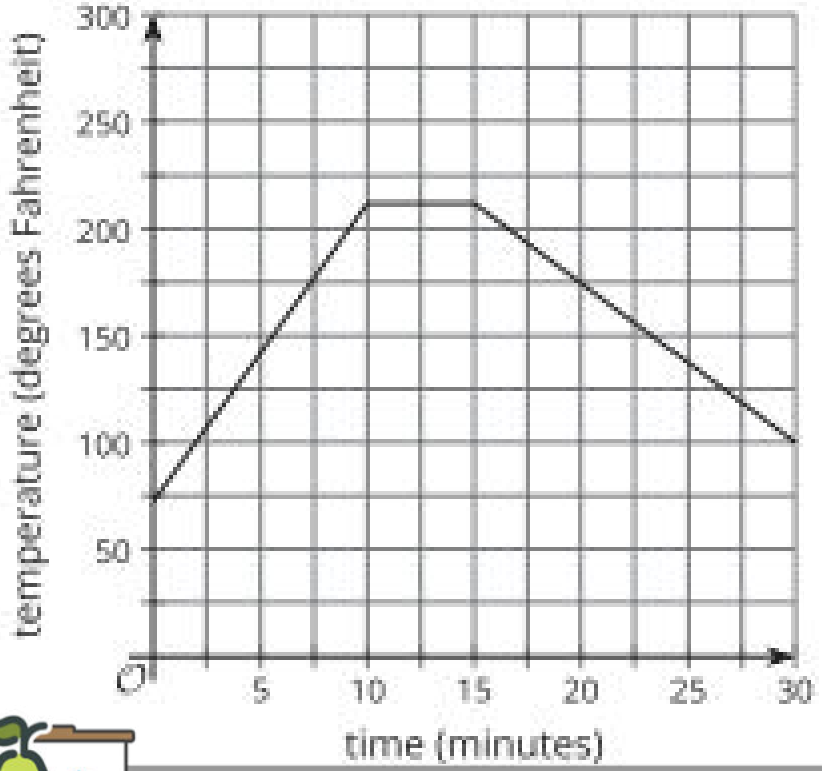


a. The temperature when the stove was turned on was 72 degrees Fahrenheit.

b. The temperature after 5 minutes was warmer than the temperature after 2 minutes.

c. The temperature of the water after 10 minutes was 212 degrees Fahrenheit.

Circle the part of the graph that connects to each statement and label the circle with d, e, or f.



d. The temperature of the water was the same after 10 minutes and after 12 minutes.

e. The temperature after 15 minutes was higher than the temperature after 30 minutes.

f. The temperature when the stove was turned on was lower than the temperature 30 minutes later.

Students, draw anywhere on this slide!

Synthesis

Attending to units of measurement when working with statements in function notation is SO important!!!!!

Pg

At noon, a news organization published a piece of breaking news on its website. The function *Q* gives the number of visitors, in thousands, to the website *h* hours after the news was published. By 2:30 p.m., the news article had been viewed by 1.6 million visitors.

Which statement in function notation correctly represents the *visitor data at 2:30 pm*. Explain why.

a. $Q(2:30) = 1.6$

b. $Q(2:30) = 1{,}600{,}000$

c. $Q(2.5) = 1.6$

d. $Q(2.5) = 1{,}600$

e. $Q(150) = 1{,}600$

f. $Q(2.5) = 1{,}600{,}000$

Students, write your response!

Visitors in a Museum

Cool Down