

TODAY'S MATERIALS



-

-

-

USING FUNCTION NOTATION TO DESCRIBE RULES (PART 2)

Lesson 5

MAKE IT
TRUE

Page

.

so
true

5.1 Warm Up (5 minutes)

5.1: Make It True

Consider the equation $q = 4 + 0.8p$.

1. What value of q would make the equation true when:

a. p is 7?

b. p is 100?

2. What value of p would make the equation true when:

a. q is 12?

b. q is 60?

Show any and all work in your packet.

How'd it go?

Consider the equation $q = 4 + 0.8p$.

1. What value of q would make the equation true when:

a. p is 7? a. $q = 9.6$

b. p is 100? b. $q = 84$

2. What value of p would make the equation true when:

a. q is 12? a. $p = 10$

b. q is 60? b. $p = 70$

**Let's graph and
find the values of
some functions.**

TODAY'S GOALS:

- ❑ I know different ways to find the value of a function and to solve equations written in function notation.
- ❑ *I know what makes a function a linear function.*
- ❑ I can use technology to graph a function given in function notation, and use the graph to find the values of the function.



DATA PLANS

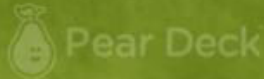
Page

.

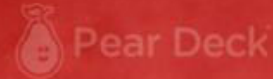
5.2 Activity (25 minutes)

Do you know what a DATA PLAN is for a phone?

Yes



No



Students choose an option

5.2: Data Plans

A college student is choosing between two data plans for her new cell phone. Both plans include an allowance of 2 gigabytes of data per month. The monthly cost of each option can be seen as a function and represented with an equation:

- Option A: $A(x) = 60$
- Option B: $B(x) = 10x + 25$

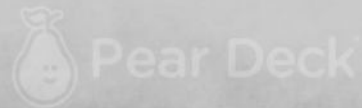
In each function, the input, x , represents the gigabytes of data used *over* the monthly allowance.

In this situation, $A(1)$ represents “the cost for Option A with usage of 1 gigabyte of data beyond the monthly allowance.”

What does $B(1)$ represent in this situation?



Students, write your response!



Pear Deck Interactive Slide
Do not remove this bar

COMPLETE 1, 2, 3 & 4!

1. $A(1) = 60; B(1) = 35$

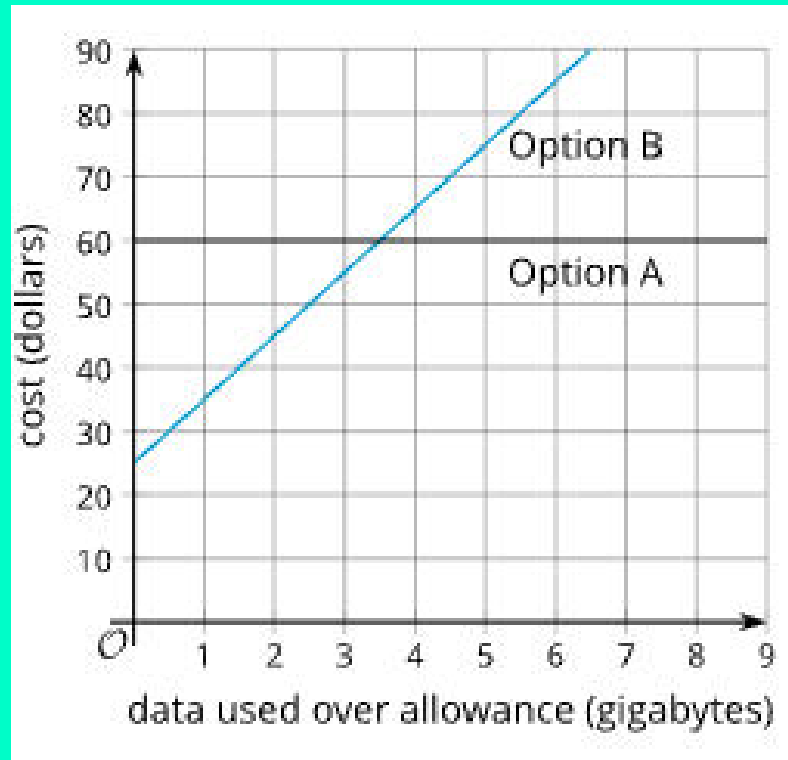
How'd it go?

1. $A(1) = 60$ and $B(1) = 35$

2. $A(7.5) = 60$ and $B(7.5) = 100$

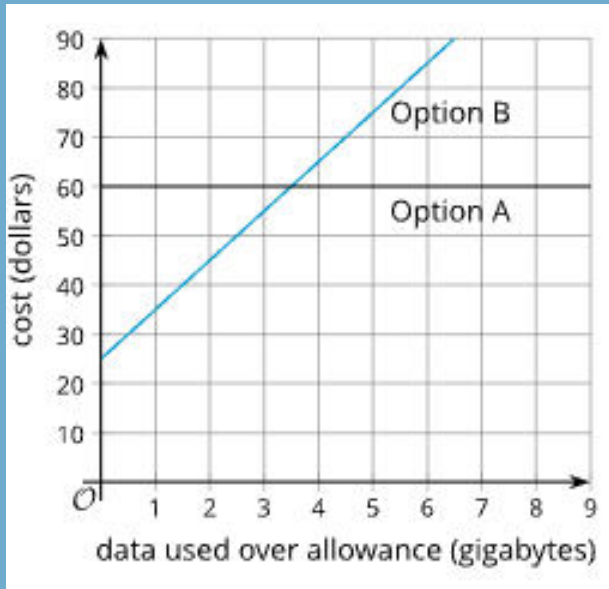
3. Option A charges a flat fee of \$60 each month. It doesn't matter how many gigabytes of data are used. Option B charges \$10 for each gigabyte of data over the 2 gigabytes allowance, plus a \$25 fee.

How'd it go?



Explain

Which plan do you think she should choose?

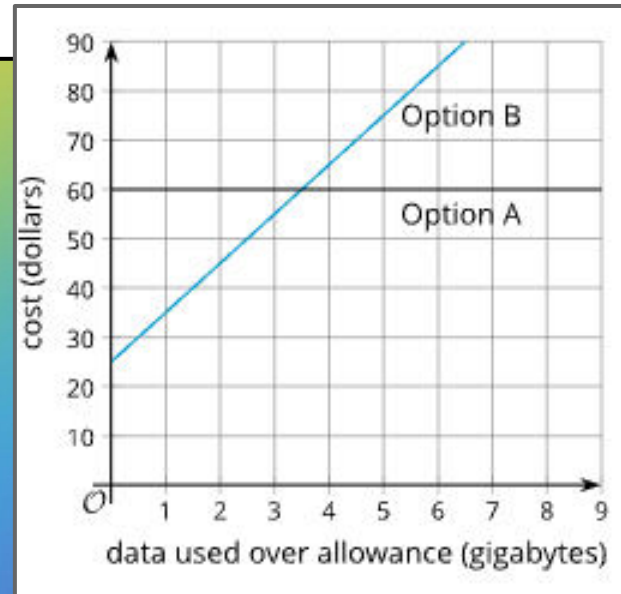


Students, write your response!

THE TWO FUNCTIONS HERE ARE LINEAR FUNCTIONS BECAUSE THE OUTPUT OF EACH FUNCTION CHANGES AT A CONSTANT RATE RELATIVE TO THE INPUT.

Option A: $A(x) = 60$

Option B: $B(x) = 10x + 25$

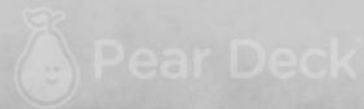


OPTION B INVOLVES A RATE OF CHANGE OF \$10 PER GIGABYTE OF DATA OVER THE MONTHLY ALLOWANCE, WHILE OPTION A HAS A RATE OF CHANGE OF \$0 PER GIGABYTE OVER THE ALLOWANCE.

COMPLETE #5

The student only budgeted \$50 a month for her cell phone. She thought, "I wonder how many gigabytes of data I would have for \$50 if I go with Option B?" and wrote $B(x) = 50$. What is the answer to her question? Explain or show how you know.

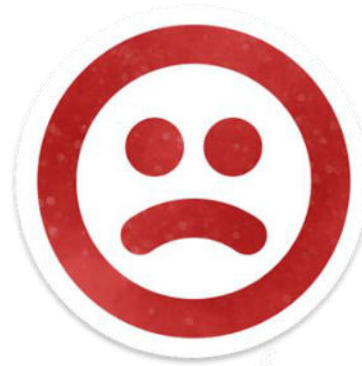
What is the
answer to
 $B(x) = 50$?



Students, write your response!

Pear Deck Interactive Slide
Do not remove this bar

Circle how you would rate your understanding of these functions...



Pear Deck



Students, draw anywhere on this slide!

Pear Deck Interactive Slide
Do not remove this bar

FUNCTION NOTATION

Page

.

5.3 Activity (20 minutes)

The function B is defined by the equation $B(x) = 10x + 25$.

1. Find the value of each expression:

$$B(6)$$

$$B(2.75)$$

$$B(1.482)$$

2. Solve each equation:

$$B(x) = 93$$

$$B(x) = 42.1$$

$$B(x) = 116.25$$

Show any and all work in your packet.
Calculator OK. No graphing technology.

How'd it go?

1. $B(6) = 85$, $B(2.75) = 52.5$, and $B(1.482) = 39.82$

2. $x = 6.8$, $x = 1.71$, and $x = 9.125$

The function B is defined by the equation $B(x) = 10x + 25$.

1. Find the value of each expression:

$$B(6)$$

$$B(2.75)$$

$$B(1.482)$$

2. Solve each equation:

$$B(x) = 93$$

$$B(x) = 42.1$$

$$B(x) = 116.25$$

NOW → Let's explore this function on DESMOS!



desmos

The function B is defined by the equation $B(x) = 10x + 25$.

1. Find the value of each expression:

$$B(6)$$

$$B(2.75)$$

$$B(1.482)$$

2. Solve each equation:

$$B(x) = 93$$


$$B(x) = 42.1$$

$$B(x) = 116.25$$

Use the Desmos Calculator

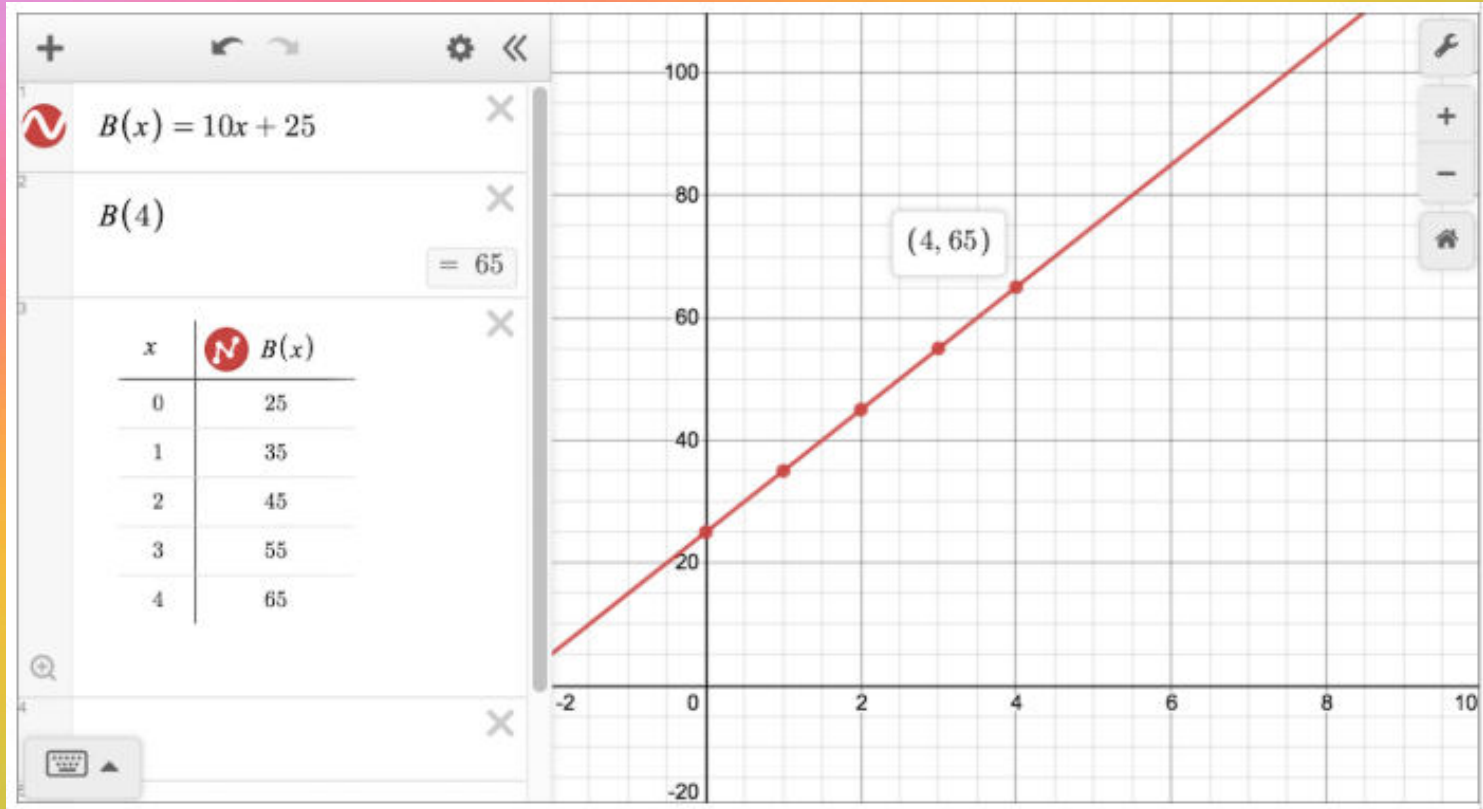


Students browse: www.desmos.com/calculator

 Pear Deck

Pear Deck Interactive Slide
Do not remove this bar

SUPER COOL DESMOS FEATURES!!!



Use Desmos →
What's the value of
 $B(1.482)$?



Students, write your response!

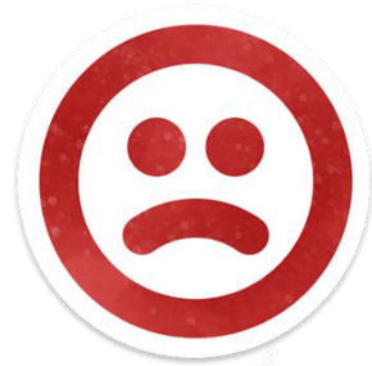
Pear Deck Interactive Slide
Do not remove this bar

Use Desmos →
Find the value of x that
makes $B(x) = 103.75$.



Students, write your response!

Circle how comfortable you feel using DESMOS to determine function input and output values:



 Pear Deck



Students, draw anywhere on this slide!

Pear Deck Interactive Slide
Do not remove this bar

DID WE MEET OUR GOALS?

- I know different ways to find the value of a function and to solve equations written in function notation.
- I know what makes a function a linear function.*
- I can use technology to graph a function given in function notation, and use the graph to find the values of the function.

