JANUARY 10

What are you looking forward to this semester?

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Students will verbally explain how to find discontinuities and create continuous piecewise functions

(using the words:
domain, curve, defined…)

Now that you're in calculus class, you're always seeing the math wherever you go. Just the other day, you were at Safeway, where they were trying to sell some extra avocadoes, so they had a promotion going on. "Buy 4 avocadoes for $1.98 a piece, and get each one after that for half off. Limit: 10 avocadoes per customer."

"Wait a minute!" you shouted. "The price of avocadoes is a piecewise function." You are very clever. You scare the other shoppers at Safeway a little bit, but you are very clever.

Of course, right away you wanted to write a function definition for your piecewise function, but you felt a little bit stuck, so you decided to start with a table.

Number of Avocadoes	1	2	3	4	5	6	7	8	9	10
Total Cost					8.91					

Before you go any further, be aware that Safeway employees have been trained laugh at you when you ask to buy a part of an avocado. Describe the domain of your function:

$.99(5)+B=8.91$

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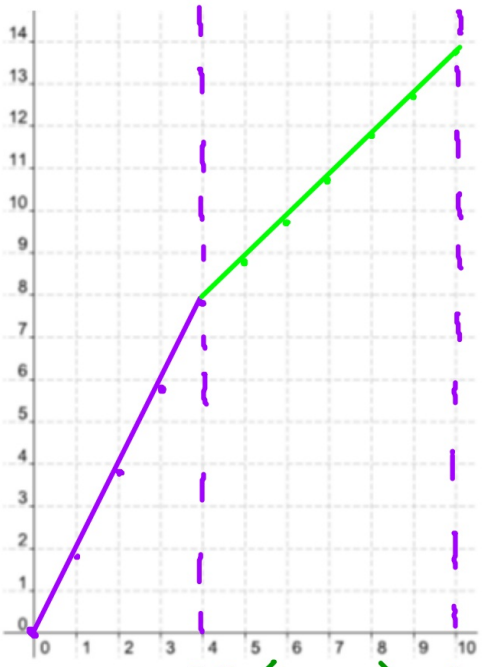
Number of Avocadoes	1	2	3	4	5	6	7	8	9	10
Total Cost				7.92	8.91					

Before you go any further, be aware that Safeway employees have been trained laugh at you when you ask to buy a part of an avocado. Describe the domain of your function:

$.99x+7.92$

$.99(x-4)+7.92$

There's a grocery store down the street (Real Groceries) that will cut the avocadoes and sell you any fraction (or irrational piece) of an avocado. Otherwise, the price is identical at both stores. Describe the domain of the function at Real Groceries:



.99(x-4)+7.92

Use the grid to graph the total cost of avocadoes vs. number of avocadoes at Real Groceries.

Is the cost of avocadoes at Safeway continuous?

Why or why not?

Is the cost of avocadoes at Real Groceries continuous?

Why or why not?

Now, you're finally ready! Write the piecewise function for the cost of avocadoes at Real Groceries:

$$C(a) = \begin{cases} 1.98x, & 0 \le x \le 4 \\ .99x+3.96, & 4 < x \le 10 \end{cases}$$

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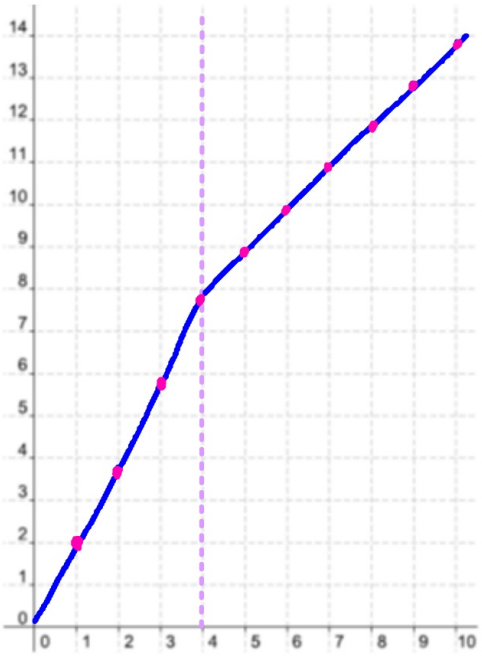

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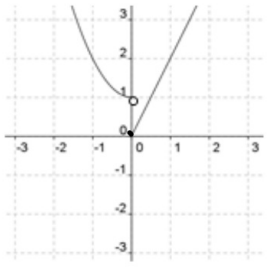
Why or why not?

Is the cost of avocadoes at Real Groceries continuous?

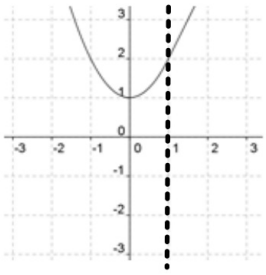
Why or why not?

Now, you're finally ready! Write the piecewise function for the cost of avocadoes at Real Groceries:

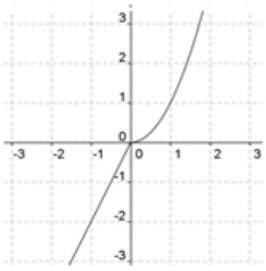
$$C(a) = \begin{cases} 1.98x, & 0 \le x \le 4 \\ .99(x-4)+7.92, & 4 < x \le 10 \\ 1.98(x-10)+13.96, & x > 10 \end{cases}$$



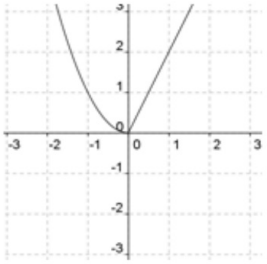
h(x)



k(x)



f(x)



g(x)