Constant Difference and Linear functions $y = x + k$

Work in pairs.

Fill out the **graphic organizer** as you work through this activity.

Then answer the questions that follow the organizer.

Context: (word problem or situation)

Gretchen and Cristina have the same birthday, but Gretchen is three years older than Cristina.

Symbols or variables used:

At any given time, denote Cristina's age by x and Gretchen's age by y (both in years).

Table:

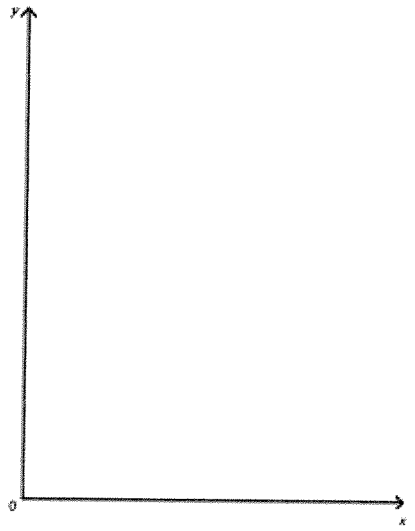
x = Cristina's age	y = Gretchen's age
0	
	5
10	

Equation:

$y =$

Equivalent Equation(s):

Graph:



1. Is Gretchen's age proportional to Cristina's age? Explain

2. What is constant in this situation?

3. Explain why the relationship between Cristina's and Gretchen's age is an additive relationship.

4. In the graph, how does the constant difference show up?

5. Use both the equation and the graph to find Gretchen's age when Cristina is six and a half years old.

6. Carla is 2 and a half years older than Cristina, and Dave is two years younger than Cristina. On the same axes, Graph Gretchen's, Carla's, and Dave's age for Cristina's first ten years. Use different colors and label each graph. Write an equation next to each graph. How will you label the vertical axis?