

Essential Question: How do we interpret and create graphs that model real-world situations?

Do Now:

Vincent is eating a packet of raisins. This graph shows the changes in the mass of raisins in the packet as time passes.

- (a) What is Vincent doing when there is a vertical line on the graph?

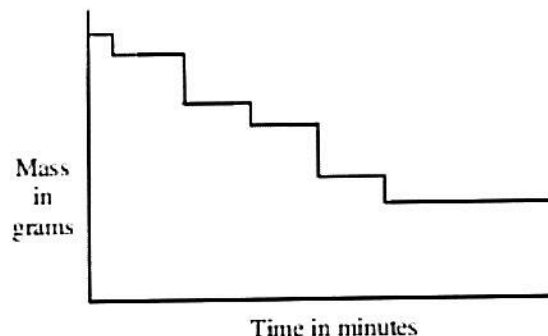
taking raisins from his pocket

- (b) Why are the vertical lines of different lengths?

he takes different amounts of raisins each time

- (c) Did Vincent eat all the raisins? How do you know?

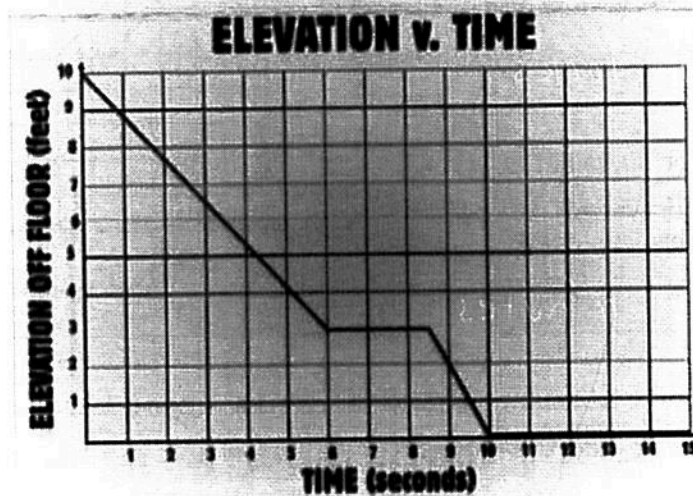
No. There are still raisins in his pocket (the mass has not reached zero)



Watch the video, "Elevation vs. Time #3"

<http://www.mrmeyer.com/graphingstories1/graphingstories3.mov>

It shows a man climbing down a ladder that is 10 feet high. At 0 seconds, his shoes are 10 feet above the floor, and at 6 seconds, his shoes are 3 feet above the floor. From 6 seconds to the 8.5 second mark, he drinks some water on the step 3 feet off the ground. After drinking the water, he takes 1.5 seconds to descend to the ground and then he walks into the kitchen. The video ends at the 15 second mark.

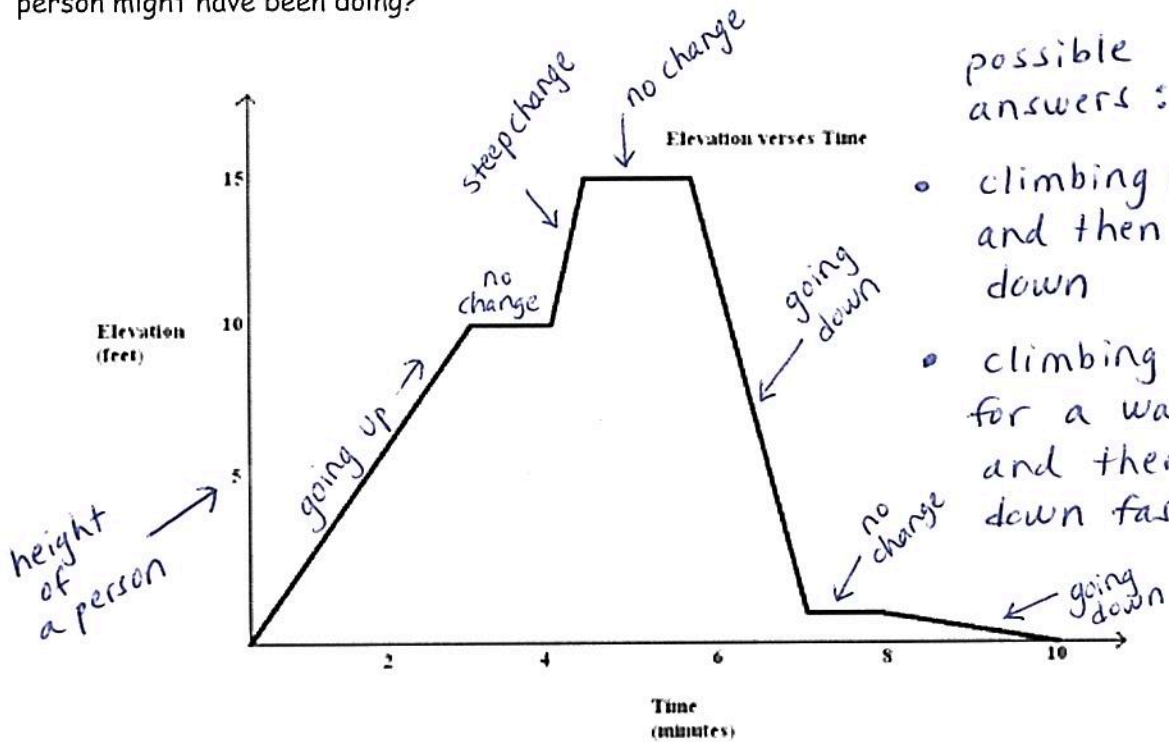


no change
in elevation

What does a horizontal line segment represent in the graphing story?

He has not changed the height of where he is (in the story, it shows the height of his elevation as he pauses to drink water)

- 1) Here is an elevation-versus-time graph of a person's motion. Can we describe what the person might have been doing?



- 2) Charlene heads out to school by foot on a fine spring day. Her distance from school, in blocks, is given as a function of the time, in minutes, she has been walking. This function is represented by the graph given below.

- (a) How far does Charlene start off from school?

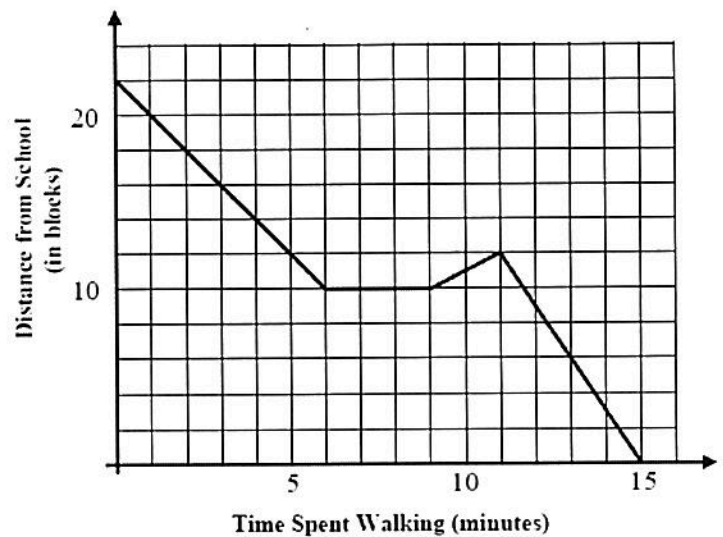
22 blocks

- (b) What is her distance from school after she has been walking for 4 minutes?

14 blocks

- (c) After walking for six minutes, Charlene stops to look for her subway pass. How long does she stop for?

3 minutes



- (d) Charlene then walks to a subway station before heading to school on the subway. How many blocks did she walk to the subway?

2 blocks

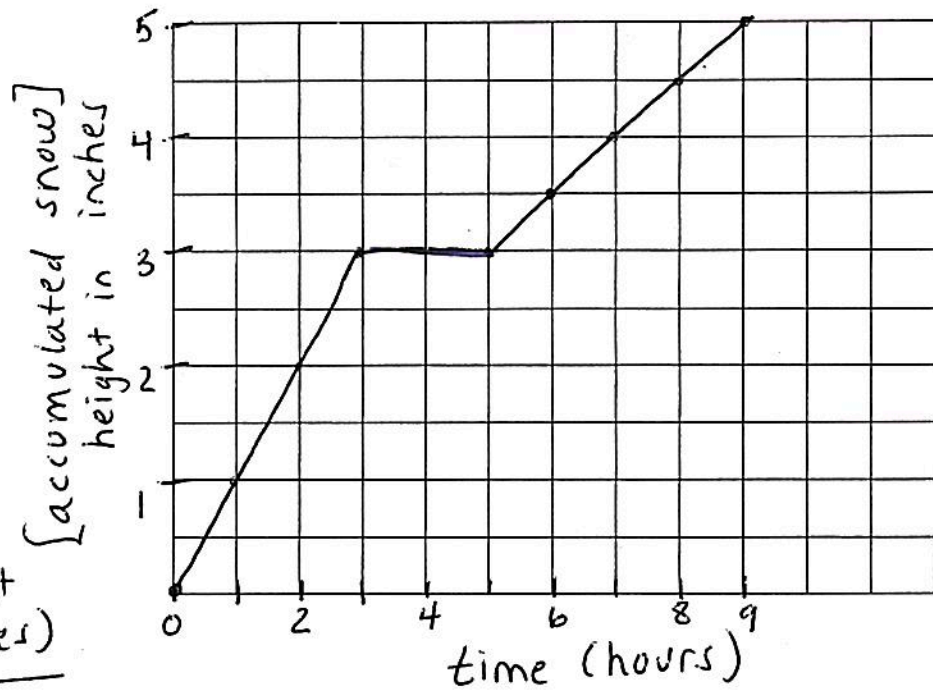
- (e) How long did it take for her to get to school once she got on the train?

4 minutes

3) During a snowstorm, a meteorologist tracks the amount of accumulating snow. For the first three hours of the storm, the snow fell at a constant rate of one inch per hour. The storm then stopped for two hours and then started again at a constant rate of one-half inch per hour for the next four hours.

a) On the grid below, draw and label a graph that models the accumulation of snow over time using the data the meteorologist collected.

b) If the snowstorm started at 6 p.m., how much snow had accumulated by midnight?



time (hrs)	height (inches)
0	0
1	1
2	2
3	3
4	3
5	3
6	3.5
7	4
8	4.5
9	5

Take Away

Graphing stories with quantities that change at a constant rate can be represented using piecewise functions.