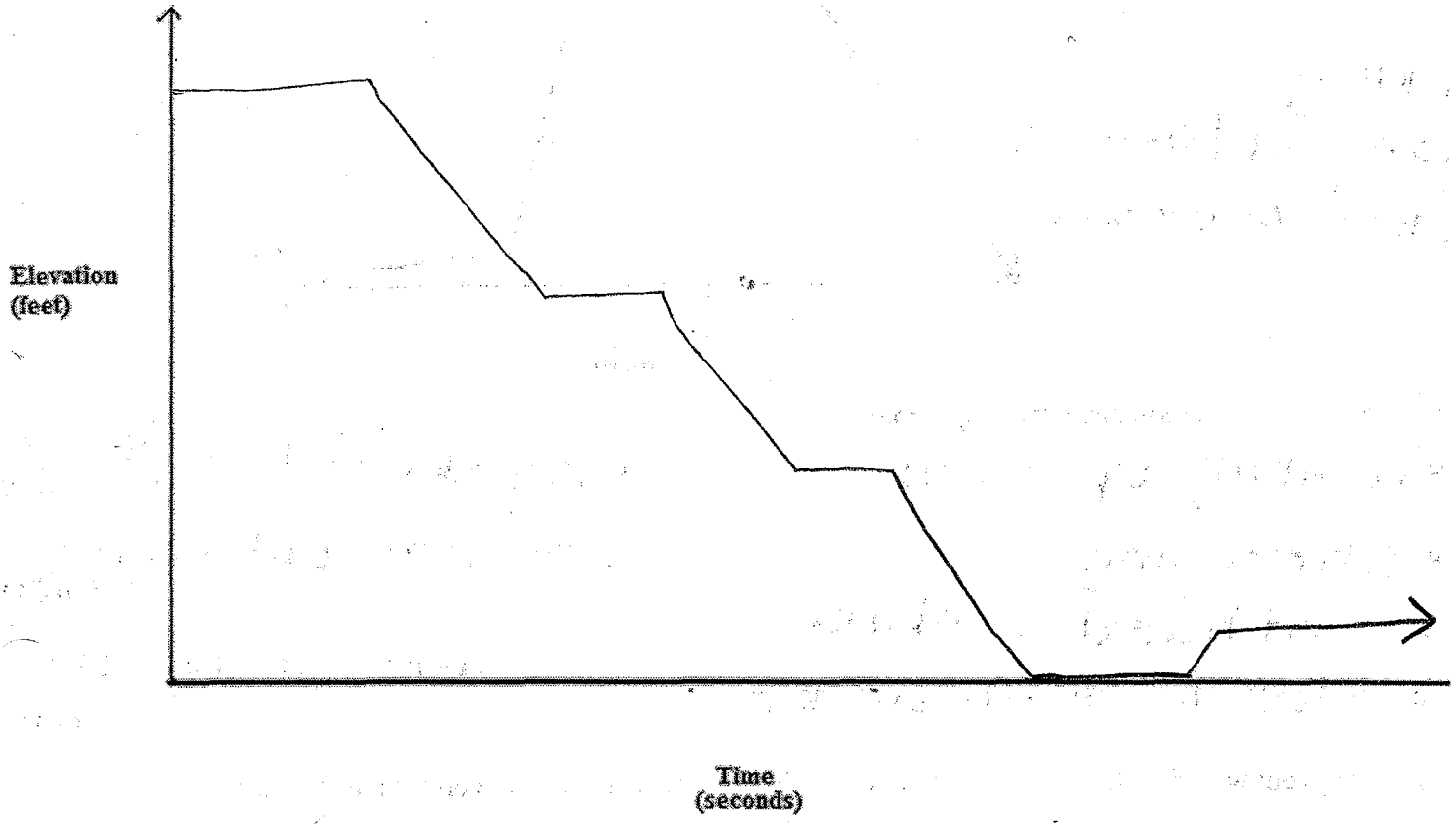
Name: _____ Date: _____

UNIT 6 **LESSON 1**

AIM: REAL-LIFE PIECEWISE LINEAR FUNCTIONS

Now: Watch the video http://www.mrmeyer.com/graphingstories1/graphingstories2.mov.

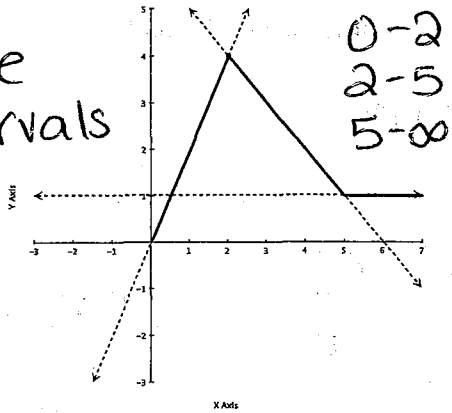
a) Sketch the story using the graph below.

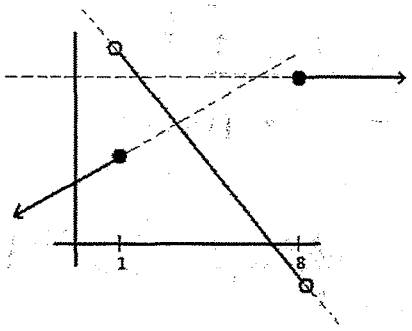


PIECEWISE LINEAR FUNCTION: each segment is part of a straight line. Time intervals do not overlap.

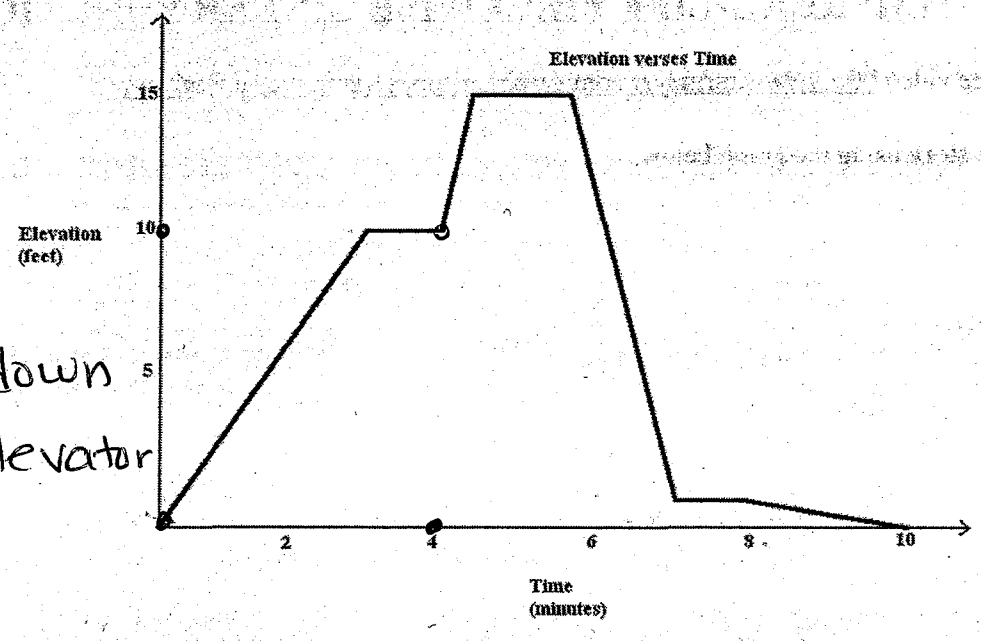
More examples of piecewise linear graphs:

Time Intervals
0-2
2-5
5-∞





1. Answer the following questions based on the piecewise function graph below.



- hiking
- going up/down stairs or elevator

a) Describe a story that represents the graph above.

- walking up a hill
- stretching
- continued walking
- stop to drink water
- jog down hill (steeper slope)
- stop to catch your breath
- walked to bottom hill

b) What is happening in the story when the graph is increasing, decreasing, and constant over time?

↙ going up ↓ going down ↘ no change in elevation

c) What does it mean for one part of the graph to be steeper than another?

moving faster

d) What was the average rate of change of the person's elevation between time 0 minutes and 4 minutes?

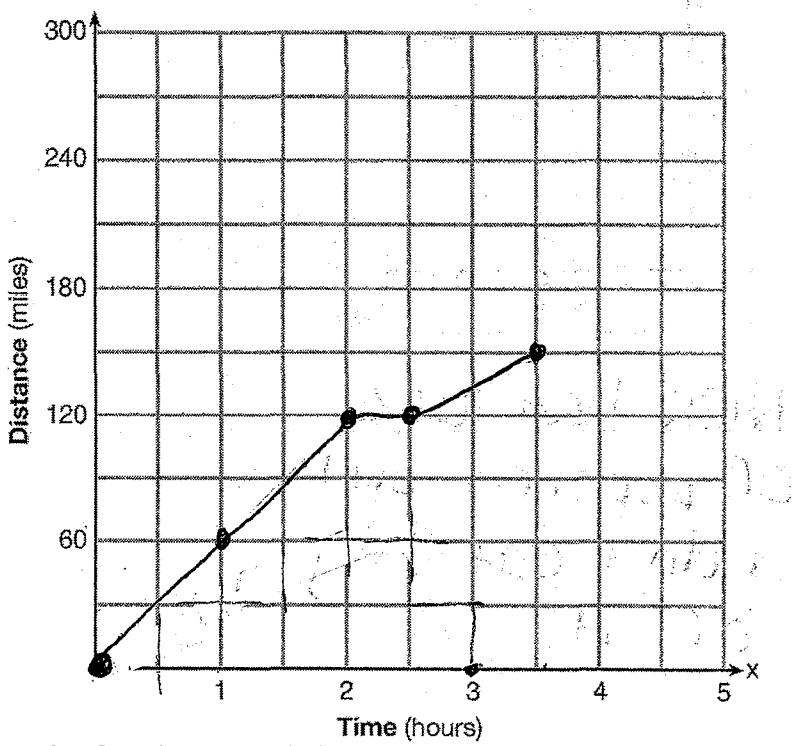
$$r = \frac{10\text{ ft}}{4\text{ min}} = 2.5\text{ ft/min}$$

Average rate of change: $D = rt$ or $r = \frac{d}{t}$ (slope)

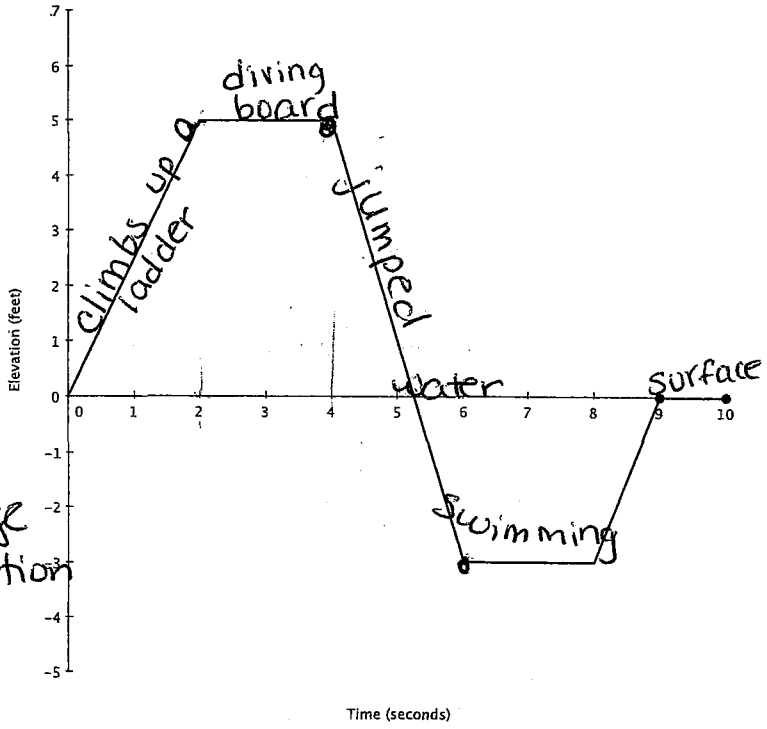
D = distance
r = rate t = time "dirt"

From the August 2015 Regents:

2. A driver leaves home for a business trip and drives at a constant speed of 60 miles per hour for 2 hours. Her car gets a flat tire, and she spends 30 minutes changing the tire. She resumes driving and drives at 30 miles per hour for the remaining one hour until she reaches her destination. On the set of axes below, draw a graph that models the driver's distance from home.



3. Answer the following questions based on the piecewise function graph below.



a) Describe a story that represents the graph above.

b) What was the average rate of change of the person's elevation between time 0 seconds and 2 seconds?

$r = \frac{5ft}{2sec} = \boxed{2.5ft/sec}$

c) What was the average rate of change of the person's elevation between time 2 seconds and 4 seconds?

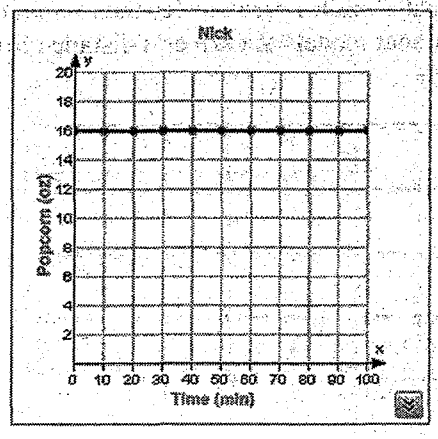
$r = \frac{0ft}{2sec} = \boxed{0ft}$ → no change in elevation

d) What was the average rate of change of the person's elevation between time 4 seconds and 6 seconds?

$r = \frac{8ft}{2sec} = \boxed{4ft/sec}$

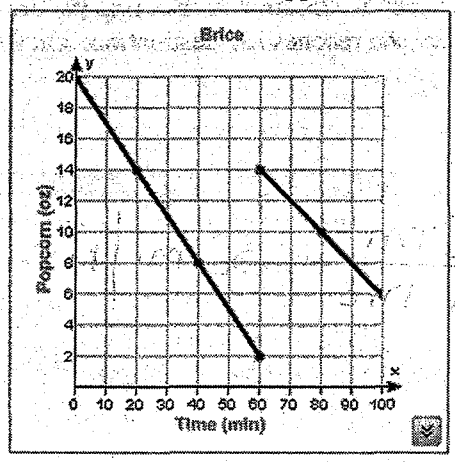
4. Below are two different graphs that represent popcorn at the movies. Describe what may have happened in each situation:

a.



Nick had 16oz of popcorn but didn't eat any of it.

b.



Brice had 20oz of popcorn, ate 18oz of it in 1 hr & got a refill (12oz) & continued to eat at a slower pace