Problem Set #1.1 – Piecewise Functions

Name: _____ Class: _____

For questions 1- 6: Watch the video, "Elevation vs. Time #3" on the website:

shehatamath.weebly.com. (Click on Algebra Enriched → Unit 1 Videos.)

> It shows a man climbing down a ladder that is 10 feet high. At time 0 seconds, his shoes are at 10 feet above the floor, and at time 6 seconds, his shoes are at 3 feet.   From time 6 seconds to the 8.5 second mark, he drinks some water on the step 3 feet off the ground. Afterward 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.

1. Draw your own graph for this graphing story. Use straight line segments in your graph to model the elevation of the man over different time intervals. Label your x-axis and y-axis appropriately and give a title to your graph.

2. Your graph is an example of a piece-wise linear function. Each linear function is defined over an interval of time, represented on the horizontal axis. List those time intervals.

3. In your graph, what does the horizontal line segment represent in the graphing story?

4. If you measured from, the top of the man's head (he is 6.2 feet tall) instead of his feet, how would your graph change?

5. Suppose the ladder is descending into the basement of an apartment. The top of the ladder is at ground level (0 feet) and the base of the ladder is 10 feet below ground level. How would your graph change in observing the man following the same motion descending the ladder?

6. What is the man's average rate of descent between time 0 seconds and time 6 seconds? What is his average rate of descent between time 8.5 seconds and time 10 seconds? Over which interval does he descend faster? How can you use your graph to determine over which interval he is descending the fastest?

7. Make up an elevation-versus-time graphing story for the following graph.

Elevation (feet)

Time (seconds)
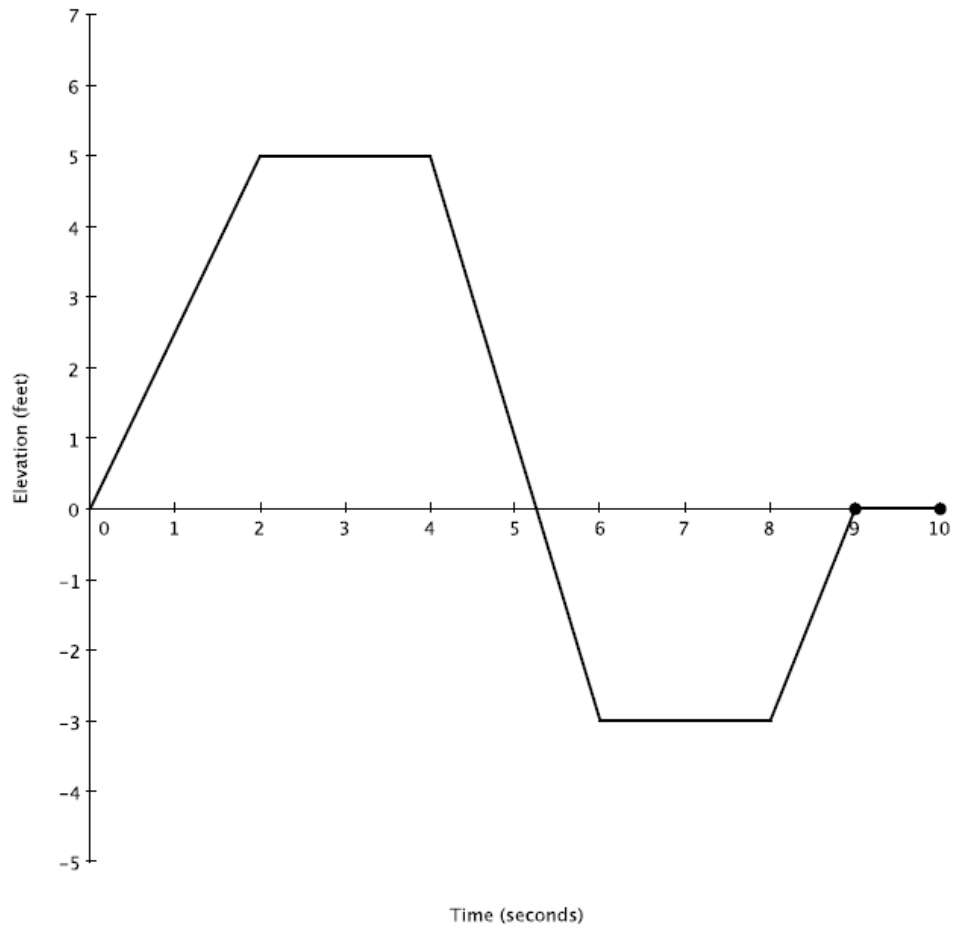
8. Draw up an elevation-versus-time graphing story of your own and then make up a story for it. Please do this on separate sheet of paper.