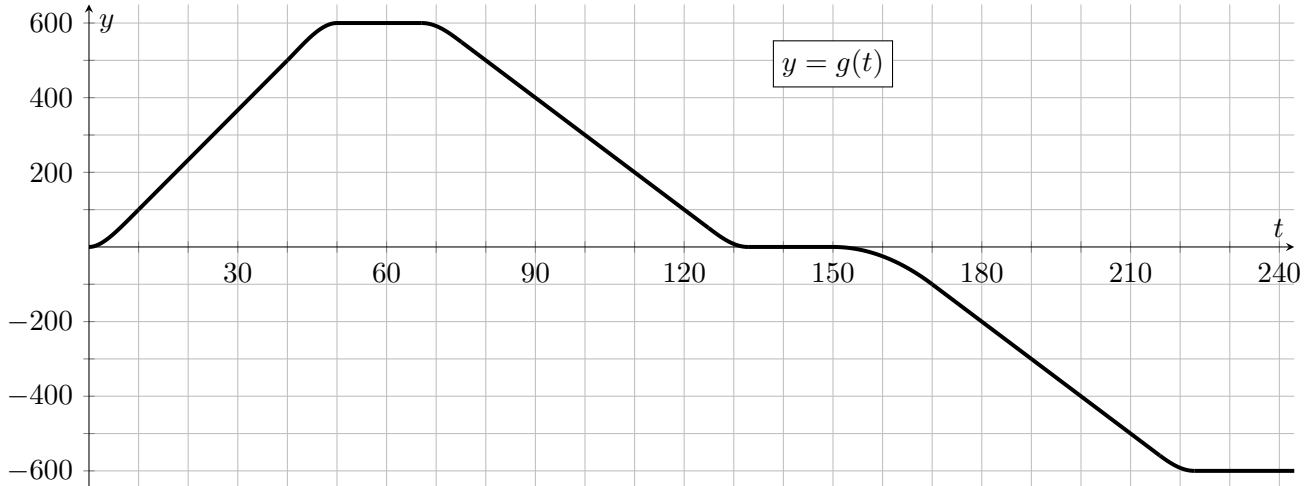


5. [9 points] The ExpressTram in the Detroit Metro Airport travels along a straight line through McNamara Terminal between the North and South Stations, with the Terminal Station in between. North and South Station are 600 meters north and 600 meters south, respectively, of the centrally located Terminal Station.

Suppose $g(t)$ is the position of the tram, in meters north of Terminal Station, t seconds after it leaves Terminal Station at 1pm on a certain day. A portion of the graph of $g(t)$ is given below.



- a. [2 points] What is the total distance the tram traveled between 1:00pm and 1:02pm? *Include units.*

Answer: _____.

- b. [2 points] It appears that the tram traveled at two different top speeds, depending on whether it was heading northward or southward. In which direction did it travel *faster*? Circle NORTH or SOUTH below. Then find the fastest speed at which the tram traveled, in meters per second.

NORTH SOUTH

Answer: _____ meters per second

- c. [2 points] What was the average velocity of the tram over the time interval $10 \leq t \leq 210$? Remember that the velocity is positive when the tram is traveling north.

Answer: _____ meters per second

- d. [1 point] At which times in the interval $10 \leq t \leq 210$ was the tram's instantaneous velocity the *same* as its average velocity between $t = 10$ and $t = 210$? *Circle the one best answer.*

$t = 10$

$t = 49$

$t = 93$

$t = 156$

$t = 200$

- e. [2 points] You are trying to get to Gate A64, which is 500 meters north of Terminal Station. Unfortunately, you just miss the ExpressTram at 1pm, so you start walking from Terminal Station towards your gate just as the tram departs. Assuming you walk at 3 meters per second, how far away from Gate A64 are you when the tram passes you again on its return trip?

Answer: _____ meters away from Gate A64