Open Response Project

100 points

1. Below is a chart of a differentiable function describing the amount of water that flows into a pipe. There are 20000 gallons of water in the tank at time = 0. The below is a strictly decreasing function.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Time (sec) | 0 | 4 | 7 | 12 | 16 |
| Liters/hour | 110 | 100 | 70 | 44 | 32 |

Left Riemann sum to find average

Right Riemann sum

Trapezoidal Sum

What is t prime at 5.5? 14?

How many gallons are in the tank at t = 16 using the left Riemann sum?

Do the liters/ hour equal 77 in the interval at anytime ? Why? Des the derivative ever equal -3 in the interval? Why?

1. Given the velocity function

V(t) = t3 – 3t2

1. Is the particle speeding up or down at t = 4? T= 10

b) What is the total distance travelled in the first 4 seconds? 6 seconds/

c) If the initial position is 4 at t= 0 what is the position at

t = 4 t = 8

d) When does the particle change direction?

3)Find the following

g( 2) g( 4) g( 6 ) g(10 ) g(0) g(-2)

Find the derivatives at the above points

Find the second derivative at

4 5 8 10

Absolute max Absolute Min

Part B – Area/ Volume

Y = 2x y = x2

Area between the curves

Volume when region is rotated around

Y = -2 y = 10 x axis x = 10