Last Test Q2

Calculus

1. Find the average rate of change for the below functions.

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1. Y = x + 4 from 0 to 6 2) y = 4x – 2 from 0 to 8
2. Below is a table depicting the temperature of a liquid in a certain timeframe. The function is differentiable and thus continuous therefore the intermediate value and mean value theorems apply. This is a strictly increasing function.

Time ( minutes) 0 12 20 30 42

Temperature ( c) 2 6 12 20 28

1. Estimate the derivative at time = 25 seconds. INDICATE UNIT OF MEASURE.
2. Using a left Riemann sum find the average temperature. Is this an over or under estimate? Why?
3. Does the temperature ever equal 4 degrees Celsius in the interval ? Why?
4. Use a trapezoidal sum to find the average temperature.
5. Given the following velocity function

3 2

V(t) = t - 4 t

1. What is the velocity at t = 5? What is the acceleration at t = 5? Is the particle speeding up or slowing down? Explain.
2. Find the total distance travelled from 0 to 5 seconds. Write integral and use calculator.
3. If the initial position is 8 at t= 0 then what is the position at t = 8? Write integral.
4. When is the particle stopped?