BC Calculus Open Response

Technology Driven

Below is a table showing the rate at which oil leaves a heating tank.

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| --- | --- | --- | --- | --- | --- | --- |
| Time (Hours) | 1 | 4 | 6 | 7 | 10 | 14 |
| Rate (Gallons/Hour | 40 | 55 | 76 | 90 | 101 | 122 |

1. Estimate the derivative at t = 8.5 hours. Don’t forget units.
2. Use a left Riemann sum to find the amount of oil that leaves the tank. Write unit. If the above function is strictly increasing, is this an over or underestimate of the amount of oil that leaves the tank? Explain.
3. If oil is added to the tank at a rate e(t) = x e.2x

How much is added in the first 14 hours?

How many gallons are in the tank at t = 14 if the tank had 25000 gallons at t = 0?