

CORRESPONDING AUTHOR _____

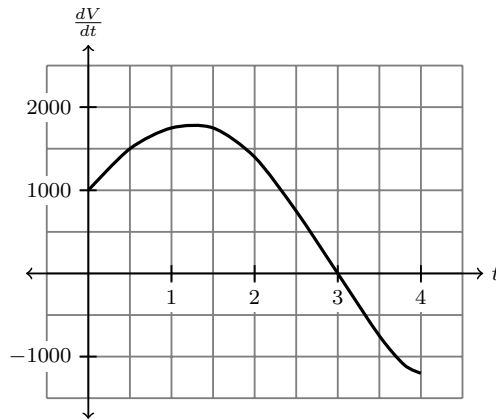
AUTHOR 2 _____

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Group Work 24

1. The graph below shows the *rate of change* $\frac{dV}{dt}$ of the volume of water flowing in and out of a storage tank in liters/day. Assume that the tank was holding 25,000 L of water at the beginning of the first day ($t = 0$).



- (a) Use an integral to express the *net change in the volume of water* from the beginning of the first day to the end of the fourth day.
- (b) Use the midpoint rule with 4 subintervals to estimate the *net change in the volume of water* from the beginning of the first day to the end of the fourth day.
- (c) Use your previous answer to estimate the *volume of water* in the tank at the end of the fourth day.

2. Compute.

(a) $\int x\sqrt{7+x^2} \, dx$

(b) $\int \frac{3x}{11+x^2} \, dx$

(c) $\int \frac{7x}{1+x^4} \, dx$

(d) $\int x^3\sqrt{2+x^2} \, dx$