

FUNDAMENTALS

$$\int_a^b Q'(x) dx = Q(b) - Q(a)$$

[Net Change in Q]

“THINKING” PROBLEMS

(a) Oil leaks from a tank at the rate of $r(t)$ gallons per minute at time t .

What is the meaning of $\int_0^{120} r(t) dt$? What are its units?

(b) If an object moves along a straight path with velocity $v(t)$ meters/sec,

what is the meaning of $\int_2^5 v(t) dt$? What are its units?