

$$1) \int_0^{24} r(t) dt \approx 3600$$

EACH BOX = 300 gal

$$2) v(0) + \int_0^{15} a(t) dt \approx$$

$$5 + \left[\frac{1}{2}(3)(a(0) + 2a(3) + 2a(6) + 2a(9) + 2a(12) + a(15)) \right]$$

$$5 + \left[\frac{3}{2}(4 + 16 + 12 + 18 + 20 + 10) \right]$$

$$5 + \frac{3}{2}(80) = 125$$

$$v(15) \approx 125 \text{ ft/sec } \textcircled{D}$$

$$3) \# \text{ of customers} = \int_0^{60} \left[12 + 6 \cos\left(\frac{t}{\pi}\right) \right] dt$$
$$= 724.645$$

CALCULATOR

725 customers arrive $\textcircled{B}$

$$4) y = 20e^{-0.5t}$$

$$\text{pollution removed} = \int_0^{10} (20e^{-0.5t}) dt$$

CALCULATOR

$$= 39.730$$

40 tons of pollution removed $\textcircled{A}$

$$5) \text{ oil consumed} = \int \text{rate of consumption}$$

$$= \int_0^{10} r(t) dt \quad \textcircled{D}$$