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$$\begin{aligned}
 &0-60 \text{ mi/hr: } v^2 = v_0^2 + 2as \\
 &0 < t < t_1 \quad (88)^2 = 0 + 2a(200), \quad a = 19.36 \text{ ft/sec}^2 \\
 &\quad \quad \quad v = v_0 + at, \quad v = 0 + 19.36 t \\
 &60-0; \quad v dv = a ds; \quad a = -kv \text{ so } \frac{v dv}{-kv} = ds \\
 &t_1 < t < t_2 \quad \text{or } dv = -k ds \quad \int_{88}^{44} dv = -k \int_0^{400} ds \\
 &\quad \quad \quad 44 - 88 = -400k, \quad k = 0.11 \text{ 1/sec} \\
 &a = dv/dt, \quad \int_{88}^v \frac{dv}{-kv} = \int_{t_1}^t dt, \quad \frac{1}{0.11} \ln \frac{88}{v} = t - t_1 \\
 &\quad \quad \quad t_1 = \frac{88}{19.36} = 4.55 \text{ sec}, \quad t = \frac{1}{0.11} \ln \frac{88}{44} + 4.55 = \underline{10.85 \text{ sec}}
 \end{aligned}$$