2/53 $\quad a = c_1 - c_2 v^2 = v \dfrac{dv}{ds}$

$$\int_0^s ds = \int_0^v \frac{v\,dv}{c_1 - c_2 v^2} = -\frac{1}{2c_2}\int_0^v \frac{-2c_2 v\,dv}{c_1 - c_2 v^2}$$

$$s = -\frac{1}{2c_2}\ln\left(c_1 - c_2 v^2\right)\Big|_0^v = \frac{1}{2c_2}\ln\left(\frac{c_1}{c_1 - c_2 v^2}\right)$$

When $s = 1320$ ft, $v = 190\left(\frac{5280}{3600}\right) = 279$ ft/sec:

$$1320 = \frac{1}{2(5)(10^{-5})}\ln\left(\frac{c_1}{c_1 - 5(10^{-5})(279)^2}\right)$$

Solve to obtain $\underline{c_1 = 31.4 \text{ ft/sec}^2}$