83. The kinetic energy of the car of mass m moving at speed v is given by $E = \frac{1}{2}mv^2$, while the potential barrier it has to tunnel through is $U = mgh$, where $h = 24\,\text{m}$. According to Eq. 39-21 and 39-22 the tunneling probability is given by $T \approx e^{-2kL}$, where

$$\begin{aligned} k &= \sqrt{\frac{8\pi^2 m(U-E)}{h^2}} = \sqrt{\frac{8\pi^2 m(mgh - \frac{1}{2}mv^2)}{h^2}} \\ &= \frac{2\pi(1500\,\text{kg})}{6.63\times 10^{-34}\,\text{J}\cdot\text{s}} \sqrt{2\left[(9.8\,\text{m/s}^2)(24\,\text{m}) - \frac{1}{2}(20\,\text{m/s})^2\right]} \\ &= 1.2\times 10^{38}\ \text{m}^{-1}\ . \end{aligned}$$

Thus, $2kL = 2(1.2\times 10^{38}\,\text{m}^{-1})(30\,\text{m}) = 7.2\times 10^{39}$. One can see that $T \approx e^{-2kL}$ is essentially zero.