58. We work this in SI units and convert to horsepower in the last step. Thus,

$$v = (80\,\text{km/h})\left(\frac{1000\,\text{m/km}}{3600\,\text{s/h}}\right) = 22.2\ \text{m/s}\ .$$

The force F_P needed to propel the car (of weight w and mass $m = w/g$) is found from Newton's second law:

$$F_{\text{net}} = F_P - F = ma = \frac{wa}{g}$$

where $F = 300 + 1.8v^2$ in SI units. Therefore, the power required is

$$\begin{aligned} P &= \vec{F}_P \cdot \vec{v} \\ &= \left(F + \frac{wa}{g}\right) v \\ &= \left(300 + 1.8(22.2)^2 + \frac{(12000)(0.92)}{9.8}\right)(22.2) \\ &= 5.14 \times 10^4\ \text{W} \\ &= \left(5.14 \times 10^4\,\text{W}\right)\left(\frac{1\,\text{hp}}{746\,\text{W}}\right) = 69\ \text{hp}\ . \end{aligned}$$