

101. We choose the direction of motion as the positive direction. We work with the kilometer and hour units, so we write $\Delta x = 0.088$ km.

(a) Eq. 2-16 leads to

$$a = \frac{v^2 - v_0^2}{2\Delta x} = \frac{65^2 - 85^2}{2(0.088)}$$

which yields $a = -1.7 \times 10^4$ km/h².

(b) In this case, we obtain

$$a = \frac{60^2 - 80^2}{2(0.088)} = -1.6 \times 10^4 \text{ km/h}^2 .$$

(c) In this final situation, we find

$$a = \frac{40^2 - 50^2}{2(0.088)} = -5.1 \times 10^3 \text{ km/h}^2 .$$