

89. We take the direction of motion as $+x$, take $x_0 = 0$ and use SI units, so $v = 1600(1000/3600) = 444$ m/s.

- (a) Eq. 2-11 gives $444 = a(1.8)$ or $a = 247$ m/s². We express this as a multiple of g by setting up a ratio:

$$a = \left(\frac{247}{9.8} \right) g = 25g .$$

- (b) Eq. 2-17 readily yields

$$x = \frac{1}{2} (v_0 + v) t = \frac{1}{2} (444)(1.8) = 400 \text{ m} .$$