33. The problem statement (see part (a)) indicates that $a =$ constant, which allows us to use Table 2-1.

(a) We take $x_0 = 0$, and solve $x = v_0 t + \frac{1}{2}at^2$ (Eq. 2-15) for the acceleration: $a = 2(x - v_0 t)/t^2$. Substituting $x = 24.0\,\text{m}$, $v_0 = 56.0\,\text{km/h} = 15.55\,\text{m/s}$ and $t = 2.00\,\text{s}$, we find

$$a = \frac{2\,(24.0\,\text{m} - (15.55\,\text{m/s})(2.00\,\text{s}))}{(2.00\,\text{s})^2} = -3.56\,\text{m/s}^2 \; .$$

The negative sign indicates that the acceleration is opposite to the direction of motion of the car. The car is slowing down.

(b) We evaluate $v = v_0 + at$ as follows:

$$v = 15.55\,\text{m/s} - \left(3.56\,\text{m/s}^2\right)(2.00\,\text{s}) = 8.43\ \text{m/s}$$

which is equivalent to 30.3 km/h.