39. We assume the periods of acceleration (duration t_1) and deceleration (duration t_2) are periods of constant a so that Table 2-1 can be used. Taking the direction of motion to be $+x$ then $a_1 = +1.22$ m/s^2 and $a_2 = -1.22$ m/s^2. We use SI units so the velocity at $t = t_1$ is $v = 305/60 = 5.08$ m/s.

   (a) We denote Δx as the distance moved during t_1, and use Eq. 2-16:

$$v^2 = v_0^2 + 2a_1\Delta x \quad \Longrightarrow \quad \Delta x = \frac{5.08^2}{2(1.22)}$$

   which yields $\Delta x = 10.59 \approx 10.6$ m.

   (b) Using Eq. 2-11, we have

$$t_1 = \frac{v - v_0}{a_1} = \frac{5.08}{1.22} = 4.17 \text{ s} .$$

   The deceleration time t_2 turns out to be the same so that $t_1 + t_2 = 8.33$ s. The distances traveled during t_1 and t_2 are the same so that they total to $2(10.59) = 21.18$ m. This implies that for a distance of $190 - 21.18 = 168.82$ m, the elevator is traveling at constant velocity. This time of constant velocity motion is

$$t_3 = \frac{168.82\,\text{m}}{5.08\,\text{m/s}} = 33.21 \text{ s} .$$

   Therefore, the total time is $8.33 + 33.21 \approx 41.5$ s.