35. The acceleration is constant and we may use the equations in Table 2-1.

(a) Taking the first point as coordinate origin and time to be zero when the car is there, we apply Eq. 2-17 (with SI units understood):

$$x = \frac{1}{2}(v + v_0)\,t = \frac{1}{2}(15 + v_0)\,(6) \ .$$

With $x = 60.0$ m (which takes the direction of motion as the $+x$ direction) we solve for the initial velocity: $v_0 = 5.00$ m/s.

(b) Substituting $v = 15$ m/s, $v_0 = 5$ m/s and $t = 6$ s into $a = (v - v_0)/t$ (Eq. 2-11), we find $a = 1.67$ m/s^2.

(c) Substituting $v = 0$ in $v^2 = v_0^2 + 2ax$ and solving for x, we obtain

$$x = -\frac{v_0^2}{2a} = -\frac{5^2}{2(1.67)} = -7.50 \text{ m} \ .$$

(d) The graphs require computing the time when $v = 0$, in which case, we use $v = v_0 + at' = 0$. Thus,

$$t' = \frac{-v_0}{a} = \frac{-5}{1.67} = -3.0 \text{ s}$$

indicates the moment the car was at rest. SI units are assumed.