7.1

(9) $a(t) = 1 + 3\sqrt{t}$ mph/sec

$v(t) = \int_0^9 1 + 3\sqrt{t}\, dt$

$v(t) = \int 1 + 3t^{1/2}$

$= t + 2t^{3/2} + C$

$v(9) = 9 + 2(9)^{3/2} = 63$ mph

$v(t) = t + 2t^{3/2}$ mph $\quad \frac{mi}{hr} \cdot \frac{1\,hr}{3600\,sec}$

$v(t) = \frac{1}{3600}t + \frac{2}{3600}t^{3/2}$ mi/sec

$\int_0^9 \left(\frac{1}{3600}t + \frac{1}{1800}t^{3/2}\right) dt = .06525\,mi \times 5280\,ft/mi$

$= \boxed{344.519\,ft}$