Question 1: B

Question 2: A

Question 3: E

Question 4: A

Question 5: B

Free Response

(a) $a(4) \approx \dfrac{10-5}{5-3} = \dfrac{5}{2}$ ft/sec^2

(b) $\displaystyle\int_0^{12} k(t)\,dt \approx (5)(3) + (10)(2) + (20)(3) + (24)(4) = 191$ feet

This approximation is an overestimate since a right Riemann sum is used and the function k is increasing.

(c) $s(12) = 5 + \displaystyle\int_0^{12} n(t)\,dt$

(d) $n'(t) = (150)(-1)(t+3)^{-2} - 50e^{-t}(-1)$

$= -\dfrac{150}{(t+3)^2} + 50e^{-t}$