

- (a) 25.35 miles  
(b) 30.975 miles  
(c) 28.1625 miles

2. 172 feet < total distance < 292 feet, so the car does not hit the deer.

3. Using a left-hand sum with four rectangles,  $\int_6^{14} \frac{7}{1.1^t} dt \approx 24.3$

4.  $\int_1^3 2^{1.1x} dx \approx 10.1$

5.  $\int_{-2}^3 f(x) dx = 25$

6.  $\int_{-2}^3 f(x) dx$  is clearly negative which gives (e) as the only possible answer.

7. (a) Intersection points at  $(-2, 1)$  and  $(1, 4)$ .

(b) Area =  $\int_{-2}^1 ((5 - x^2) - (x + 3)) dx$

(c) Area = 4.5

8. Area =  $\int_{-2}^3 ((x + 4) - (x^2 - 2)) dx = 20.8333 \dots$

- (a) 5.1 inches  
(b) 8.1 inches  
(c) 6.6 inches

- (a)  $\int_0^3 200(1.6)^t dt$   
(b) 1317  
(c)  $500 + 1317 = 1817$

11.  $\int_1^2 100e^{-2t} dt \approx 5.85$

12. (a) The definite integral of the rate of change of some quantity gives us the total change in that quantity.

(b)  $\int_a^b F'(t) dt = F(b) - F(a)$