

HW 6.2 p. 291 2-30 even

Tuesday, January 20, 2015 8:49 PM

(2) $\lim_{n \rightarrow \infty} \sum_{k=1}^n (c_k^2 - 3c_k) \Delta x = \int_{-7}^5 (x^2 - 3x) dx$

(4) $\lim_{n \rightarrow \infty} \sum_{k=1}^n \frac{1}{1-c_k} \Delta x = \int_2^3 \frac{1}{1-x} dx$

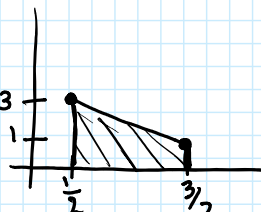
(6) $\lim_{n \rightarrow \infty} \sum_{k=1}^n (\sin^3 c_k) \Delta x = \int_{-\pi}^{\pi} (\sin^3 x) dx$

(8) $\int_3^7 (-20) dx = (-20)(7-3) = -80$

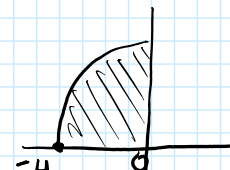
(10) $\int_{-4}^{-1} \frac{\pi}{2} d\theta = \frac{\pi}{2}(-1 - (-4)) = \frac{3\pi}{2}$

(12) $\int_{\sqrt{2}}^{\sqrt{18}} \sqrt{2} dr = \sqrt{2}(\sqrt{18} - \sqrt{2}) = \sqrt{2}(3\sqrt{2} - \sqrt{2}) = \sqrt{2}(2\sqrt{2}) = 4$


(14) $\int_{\frac{1}{2}}^{\frac{3}{2}} (-2x+4) dx = \frac{1}{2}(3+1)(1) = 2$



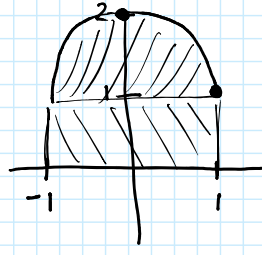
(16) $\int_{-4}^0 \sqrt{16-x^2} dx = \frac{1}{4}(\pi(4)^2) = 4\pi$



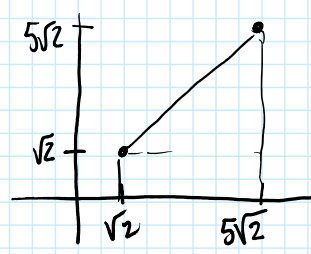
(18) $\int_{-1}^1 (1-|x|) dx = \frac{1}{2}(2)(1) = 1$



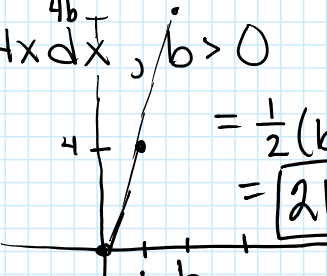
(20) $\int_{-1}^1 (1 + \sqrt{1-x^2}) dx = \frac{1}{2}(\pi(1)^2) + 2(1) = \frac{\pi}{2} + 2$



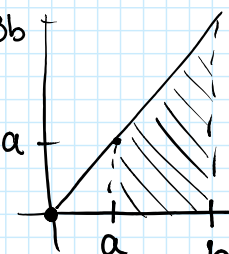
(22) $\int_{\sqrt{2}}^{5\sqrt{2}} r dr = \frac{1}{2}(\sqrt{2} + 5\sqrt{2})(4\sqrt{2}) = \frac{1}{2}(6\sqrt{2})(4\sqrt{2}) = 24$



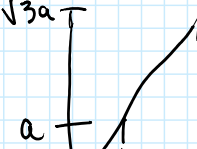
(24) $\int_0^b 4x dx, b > 0 = \frac{1}{2}(b)(4b) = 2b^2$



(26) $\int_a^b 3t dt, 0 < a < b = \frac{1}{2}(3a+3b)(b-a) = \frac{3}{2}(a+b)(b-a) = \frac{3}{2}(b^2 - a^2)$



(28) $\int_a^{\sqrt{3}a} x dx, a > 0$



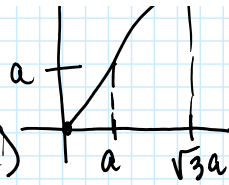
(30) $\int_0^{60} 25 dt = 25(60-0) = 1500 \text{ gallons}$

$$(20) \int_a^a x dx, a > 0$$

$$= \frac{1}{2}(a + \sqrt{3}a)(\sqrt{3}a - a)$$

$$= \frac{1}{2}a(1 + \sqrt{3})a(\sqrt{3} - 1)$$

$$= \frac{1}{2}a^2(2) = \boxed{a^2}$$



$$(30) \int_0^{60} 25 dt = 25(60 - 0) = \boxed{1500 \text{ gallons}}$$