

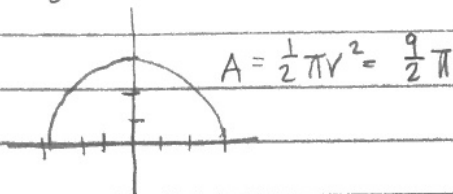
### 4.3 Definite Integrals

pp. 272 - 274 (13-45 odds)

13.  $\int_0^5 3 dx$

31.  $\int_{-3}^3 \sqrt{9-x^2} dx = \frac{9}{2}\pi$

15.  $\int_{-4}^4 (4-|x|) dx$



17.  $\int_{-2}^2 (4-x^2) dx$

19.  $\int_0^{\pi} \sin x dx$

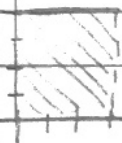
33.  $\int_4^2 x dx = -\int_2^4 x dx = -6$

21.  $\int_0^2 y^3 dy$

35.  $\int_2^4 4x dx = 4 \int_2^4 x dx = 4(6) = 24$

23.  $\int_0^3 4 dx = 12$

37.  $\int_2^4 (x-8) dx = \int_2^4 x dx - 8 \int_2^4 dx = 6 - 8(2) = -10$



39.  $\int_2^4 (\frac{1}{2}x^3 - 3x + 2) dx$

25.  $\int_0^4 x dx = \frac{1}{2}(4)(4) = 8$

$\frac{1}{2} \int_2^4 x^3 dx - 3 \int_2^4 x dx + 2 \int_2^4 dx$



$(\frac{1}{2})(60) - (3)(6) + 2(2) = 18$

41.  $\int_0^5 f(x) dx = 10$      $\int_5^7 f(x) dx = 3$

27.  $\int_0^2 (2x+5) dx = 14$

a.  $\int_0^7 f(x) dx = \int_0^5 f(x) dx + \int_5^7 f(x) dx = 10 + 3 = 13$

$A = 2 \cdot 5 + \frac{1}{2}(2)(4)$

b.  $\int_5^0 f(x) dx = -\int_0^5 f(x) dx = -10$



c.  $\int_5^5 f(x) dx = 0$

d.  $\int_0^5 3f(x) dx = 3(10) = 30$

$$43. \int_2^6 f(x) dx = 10 \quad \int_2^6 g(x) dx = -2$$

$$a. \int_2^6 [f(x) + g(x)] dx = 10 - 2 = \boxed{8}$$

$$b. \int_2^6 [g(x) - f(x)] dx = -2 - 10 = \boxed{-12}$$

$$c. \int_2^6 2g(x) dx = 2(-2) = \boxed{-4}$$

$$d. \int_2^6 3f(x) dx = 3(10) = \boxed{30}$$

$$45. a. \int_0^2 f(x) dx = \frac{1}{4} \pi 2^2 = \boxed{\pi}$$

$$b. \int_2^6 f(x) dx = \frac{1}{2} (4)(2) = \boxed{4}$$

$$c. \int_{-4}^2 f(x) dx = \frac{1}{2} (\pi)(2) - \pi - \pi = \boxed{-1 - 2\pi}$$

$$d. \int_{-4}^6 f(x) dx = -1 - 2\pi + 4 = \boxed{3 - 2\pi}$$

$$e. \int_{-4}^6 |f(x)| dx = \boxed{5 + 2\pi}$$

$$f. \int_{-4}^6 [f(x) + 2] dx = \int_{-4}^6 f(x) dx + \int_{-4}^6 2 dx$$

$$\boxed{3 - 2\pi} + 10(2) = \boxed{23 - 2\pi}$$

