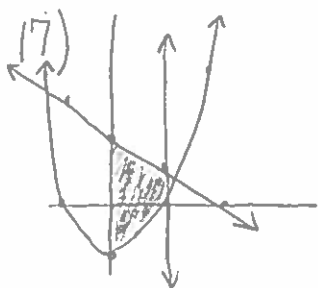


7.1 Area Between Two Curves

Pg. 442 #'s 1-4, 17, 19, 23, 71

1) $\int_0^6 ((0) - (x^2 - 6x)) dx$ 2) $\int_{-2}^2 ((2x+5) - (x^2+2x+1)) dx$

3) $\int_0^3 ((-x^2+2x+3) - (x^2-4x+3)) dx$ 4) $\int_0^1 ((x^2) - (x^3)) dx$



17) $\int_0^1 ((-x+2) - (x^2-1)) dx$

$\int_0^1 (-x+2-x^2+1) dx$

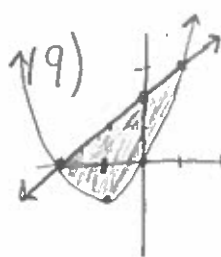
$\int_0^1 (-x^2-x+3) dx$

$(-\frac{1}{3}x^3 - \frac{1}{2}x^2 + 3x) \Big|_0^1$

$(-\frac{1}{3} - \frac{1}{2} + 3) - (0)$

$-\frac{2}{6} - \frac{3}{6} + \frac{18}{6}$

$\boxed{\frac{13}{6}}$



19) $\int_{-2}^1 ((x+2) - (x^2+2x)) dx$

$\int_{-2}^1 (-x^2-x+2) dx$

$(-\frac{1}{3}x^3 - \frac{1}{2}x^2 + 2x) \Big|_{-2}^1$

$(-\frac{1}{3} - \frac{1}{2} + 2) - (\frac{8}{3} - 2 - 4)$

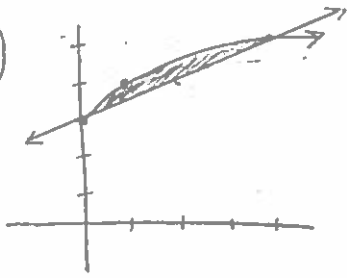
$-\frac{1}{3} - \frac{1}{2} + 2 - \frac{8}{3} + 2 + 4$

$-\frac{9}{3} - \frac{1}{2} + 8$

$-3 - \frac{1}{2} + 8$

$\boxed{4.5}$

23)



$$\int_0^4 ((\sqrt{x} + 3) - (\frac{1}{2}x + 3)) dx$$

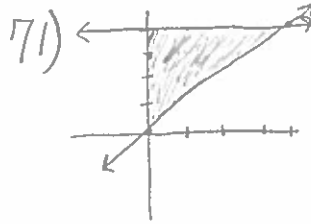
$$\int_0^4 (x^{1/2} - \frac{1}{2}x) dx$$

$$\left(\frac{2}{3}x^{3/2} - \frac{1}{4}x^2 \right) \Big|_0^4$$

$$\left(\frac{2}{3}(8) - \frac{1}{4}(16) \right) - (0)$$

$$\frac{16}{3} - 4$$

$$\boxed{\frac{4}{3}}$$



$$\int_0^4 ((4) - (x^2)) dx$$

$$\int_0^4 (4 - x^2) dx$$

$$\left(4x - \frac{1}{3}x^3 \right) \Big|_0^4$$

$$(16 - 8) - (0)$$

$$8$$

$$8 \div 2 = 4$$

$$\int_0^a (4 - x) dx = 4$$

$$\left(4x - \frac{1}{2}x^2 \right) \Big|_0^a = 4$$

$$(4a - \frac{1}{2}a^2) - (0) = 4$$

$$4a - \frac{1}{2}a^2 = 4$$

$$8a - a^2 = 8$$

$$a^2 - 8a + 8 = 0$$

$$\frac{8 \pm \sqrt{8^2 - 4(1)(8)}}{2(1)}$$

$$\frac{8 \pm \sqrt{64 - 32}}{2}$$

$$\frac{8 \pm \sqrt{32}}{2}$$

$$\frac{8 \pm 2\sqrt{2}}{2}$$

$$4 \pm \sqrt{2}$$

$$4 + \sqrt{2}$$

$$\boxed{4 - \sqrt{2}}$$