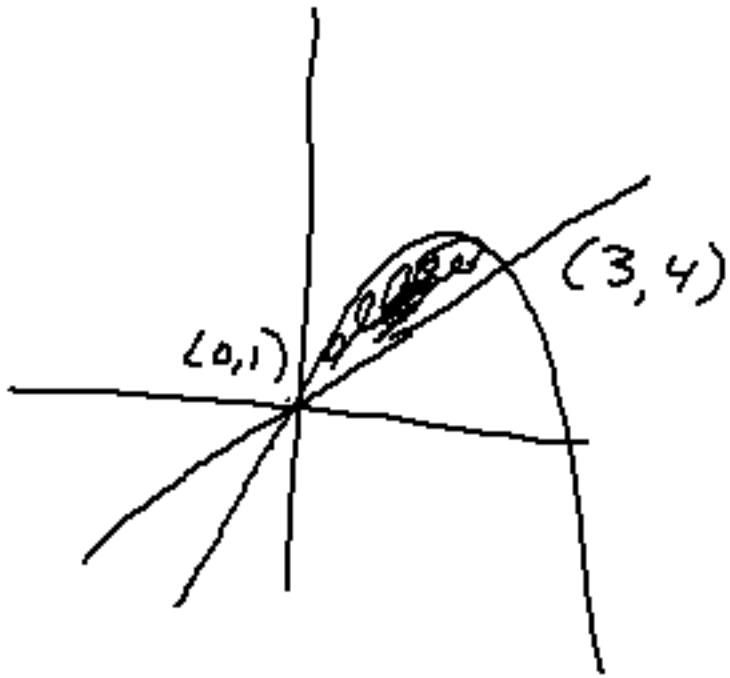
p 452

(20) $f(x) = -x^2 + 4x + 1$

$g(x) = x + 1$



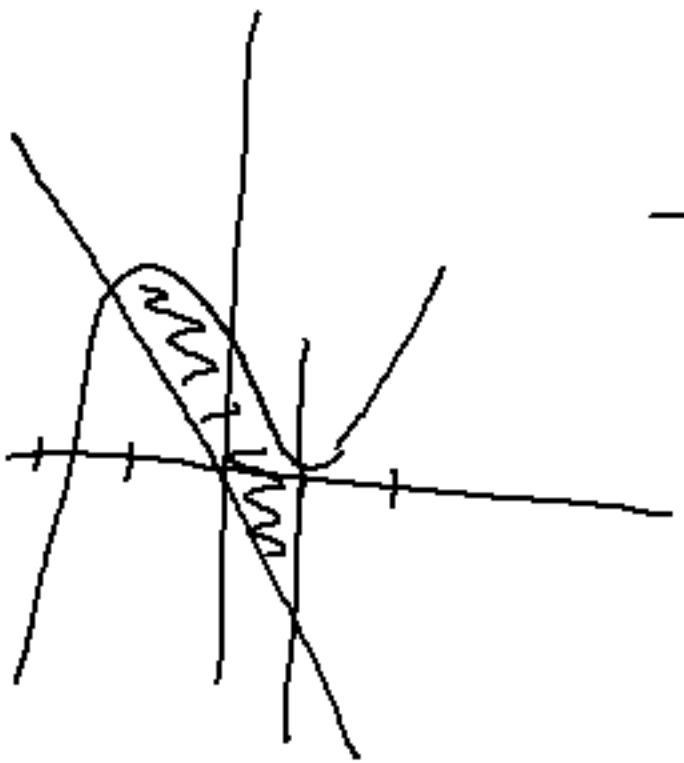
$$\int_0^3 -x^2 + 4x + 1 - (x + 1)\,dx$$

$$= 4.5$$

(34) $f(x) = x^3 - 2x + 1$

$g(x) = -2x$

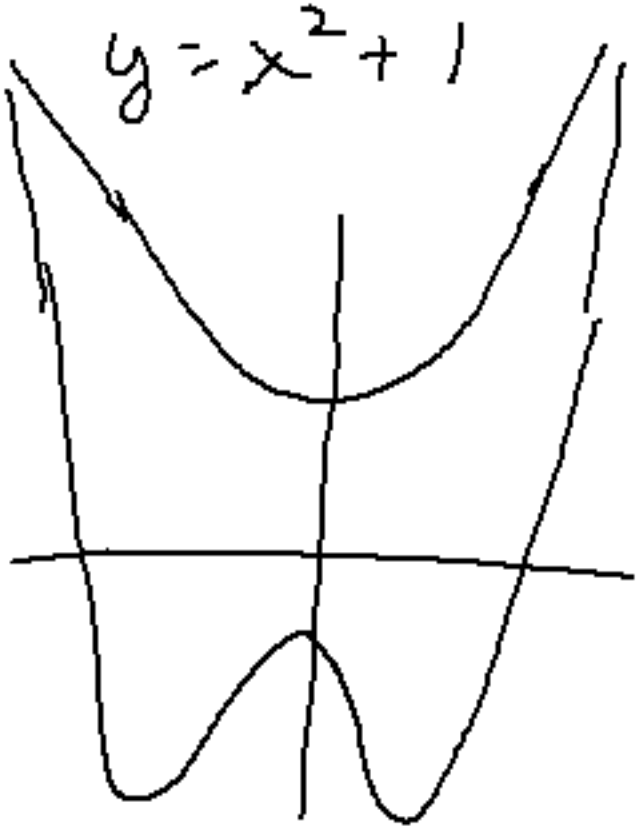
$x = 1$



$$\int_{-1}^{1} x^3 - 2x + 1 - (-2x)\,dx$$

$$= 2$$

ex) $y = x^4 - 5x^2 - 1$



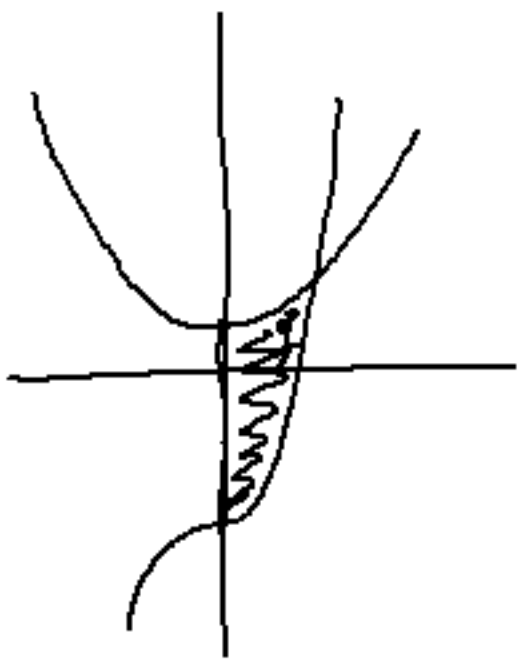
$$\int_{-2.51329}^{2.5132896} x^2 + 1 - (x^4 - 5x^2 - 1)\,dx$$

$$= 33.443$$

ex) $y = x^3 + x^2 - 5$

$y = \frac{1}{2}x^2 + 1$

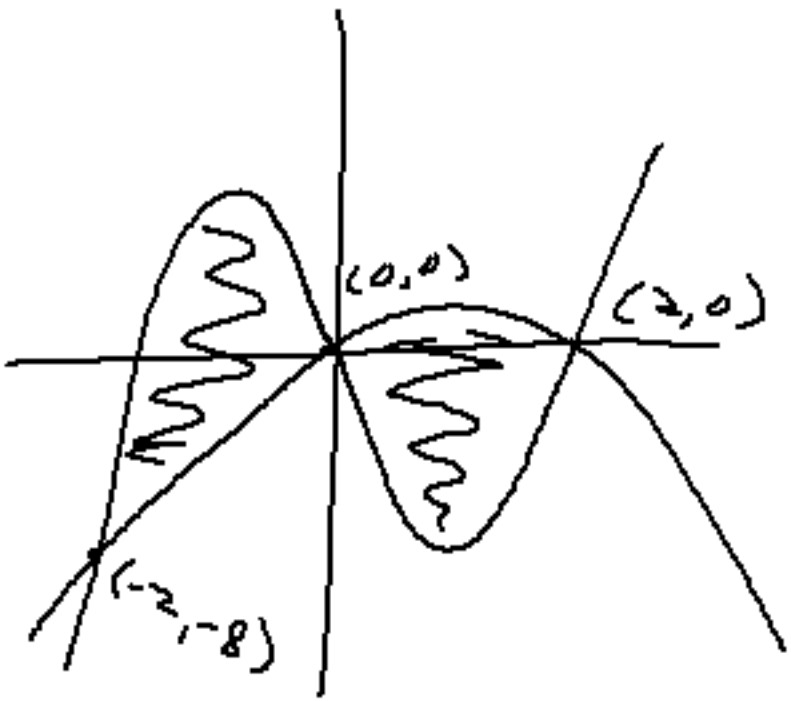
$x = 0$



$$\int_0^{1.6648129} \frac{1}{2}x^2 + 1 - (x^3 + x^2 - 5)\,dx$$

$$= 7.299$$

p449 ex 4



$$\int_{-2}^{0} 3x^3 - x^2 - 10x - (-x^2 + 2x)\,dx$$

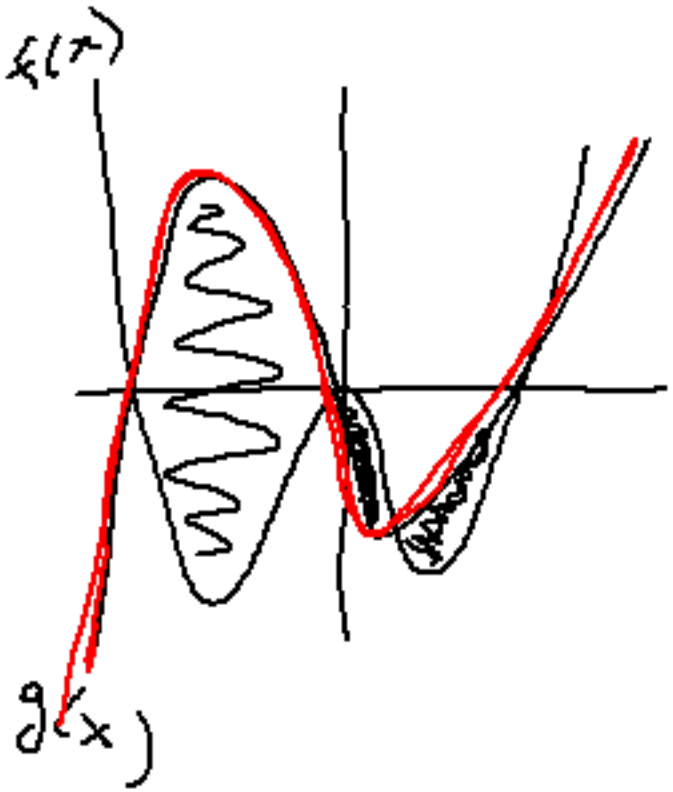
$$+ \int_{0}^{2} -x^2 + 2x - (3x^3 - x^2 - 10x)\,dx$$

$$= 12 + 12 = 24$$

p452 #38

$f(x) = x^4 - 4x^2$

$g(x) = x^3 - 4x$



$$\int_{-2}^{0} g(x) - f(x)\,dx = 8.26666$$

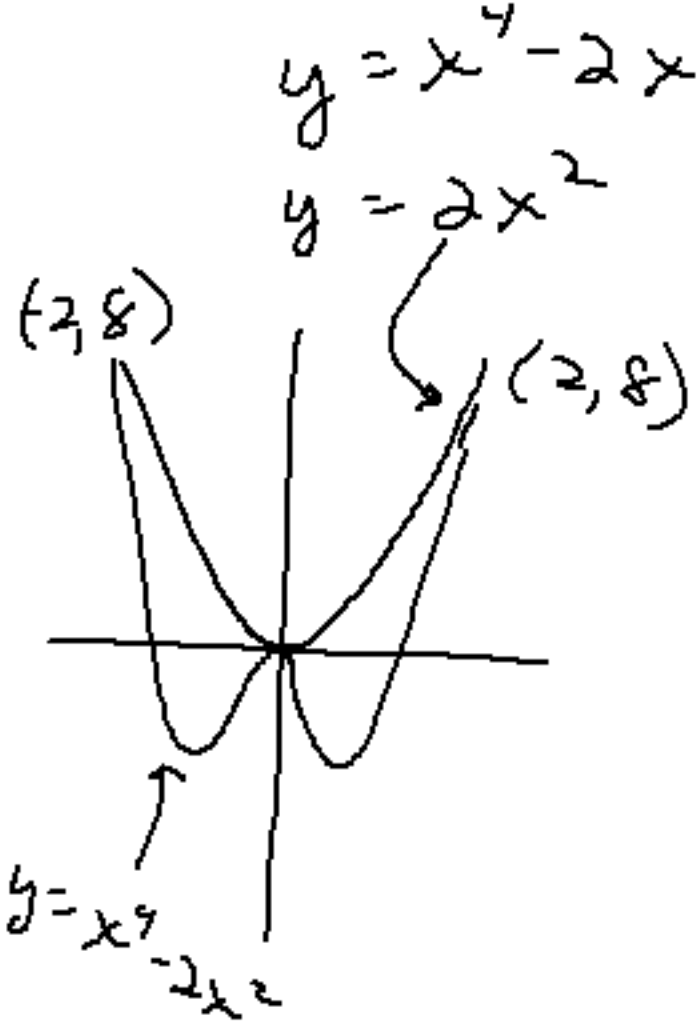
$$\int_{0}^{1} f(x) - g(x)\,dx = .616666$$

$$\int_{1}^{2} g(x) - f(x)\,dx = .883333$$

$$= 9.767$$

#36

$y = x^4 - 2x^2$



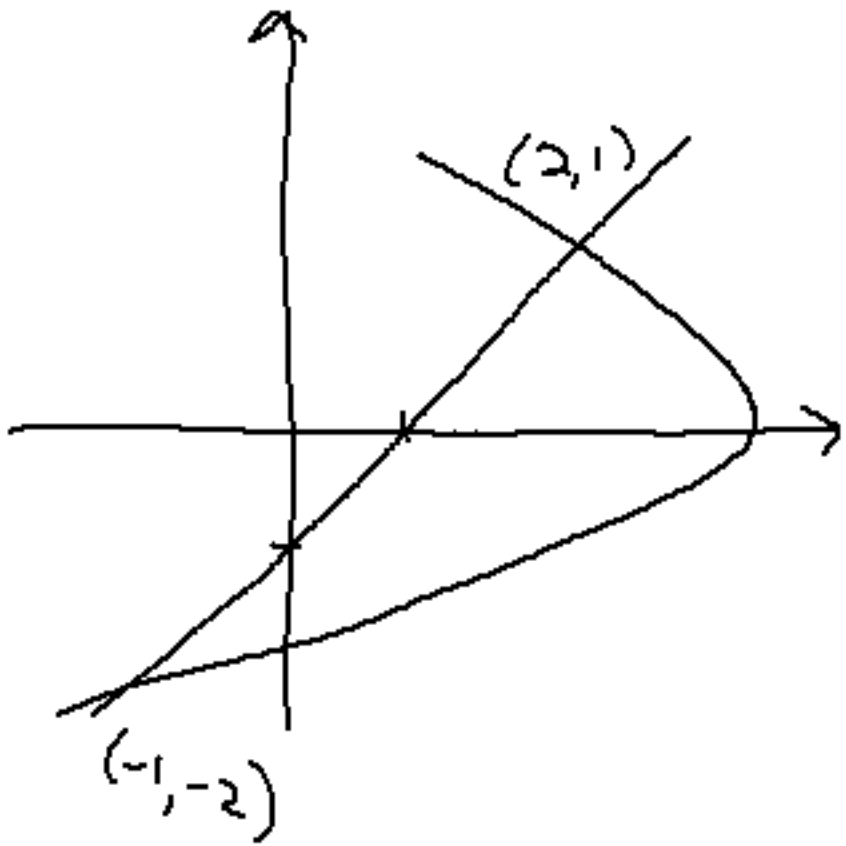
$$\int_{-2}^{2} 2x^2 - (x^4 - 2x^2)\,dx$$

$$= 8.533$$

p450 ex 5

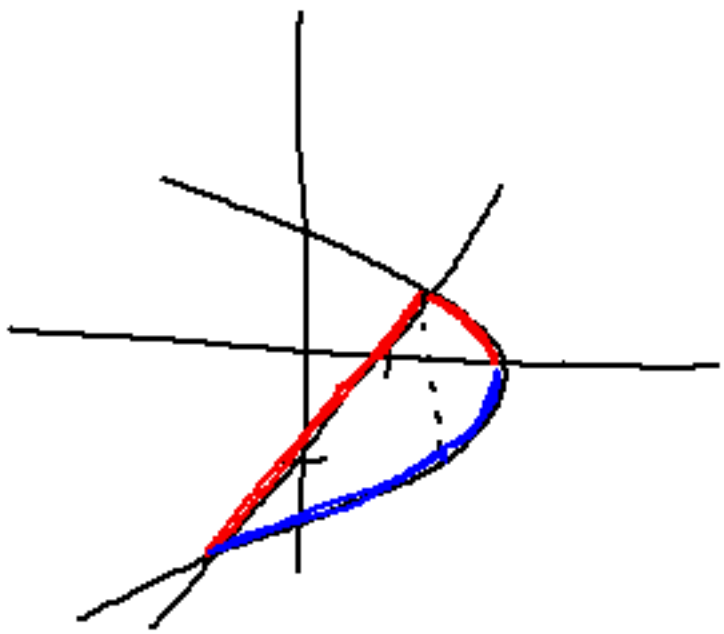
$x = 3 - y^2$

$x = y + 1$



$$\int_{-2}^{1} 3 - y^2 - (y+1)\, dy$$

$$= 4.5$$



p452 #23

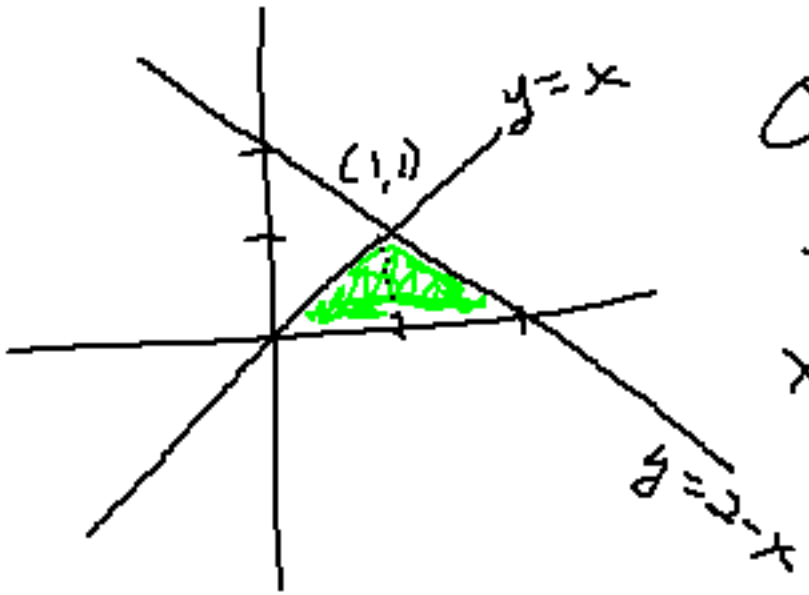
$y = x$

$y = 2 - x$

$y = 0$

$$\int_0^1 x - 0 \, dx + \int_1^2 2 - x - 0 \, dx$$

$$= .5 + .5 = 1$$



OR

$x = y$

$x = 2 - y$

$$\int_0^1 2 - y - y \, dy$$

$$= 1$$

p 454
#77

$y = x$

$y = 4$

$x = 0$

$$\int_0^a 4 - x\,dx = \int_a^4 4 - x\,dx$$

$$4x - \tfrac{1}{2}x^2 \Big]_0^a = 4x - \tfrac{1}{2}x^2 \Big]_a^4$$

$$4a - \tfrac{1}{2}a^2 - 0 = 8 - \left(4a - \tfrac{1}{2}a^2\right)$$

$$4a - \tfrac{1}{2}a^2 = 8 - 4a + \tfrac{1}{2}a^2$$

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

$$a = 1.172$$

p 452

6, 13b, 25, 31, 37, 56