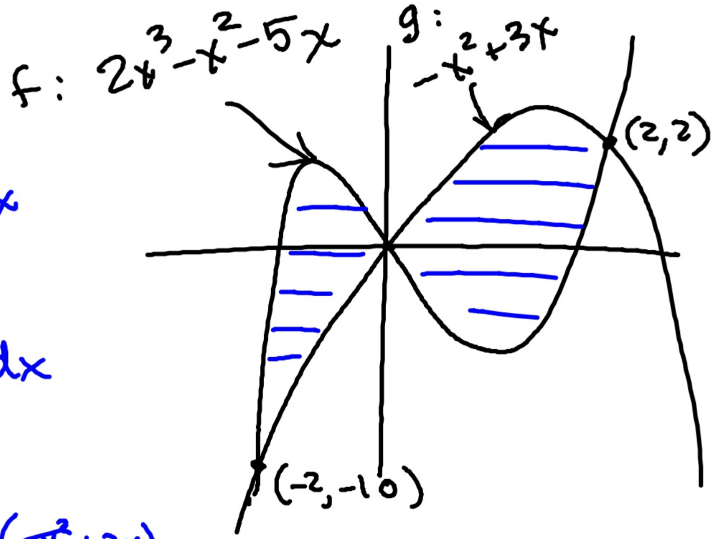
analytically:

$$\int_{-2}^{0}\left(f(x)-g(x)\right)dx$$

$$+\int_{0}^{2}\left(g(x)-f(x)\right)dx$$



$f(x)-g(x)=$

$2x^3-x^2-5x-(-x^2+3x)$

$=2x^3-8x$

$g(x)-f(x)=8x-2x^3$

on calculator:

$$\text{area}=\int_{-2}^{2}\left|f(x)-g(x)\right|dx$$

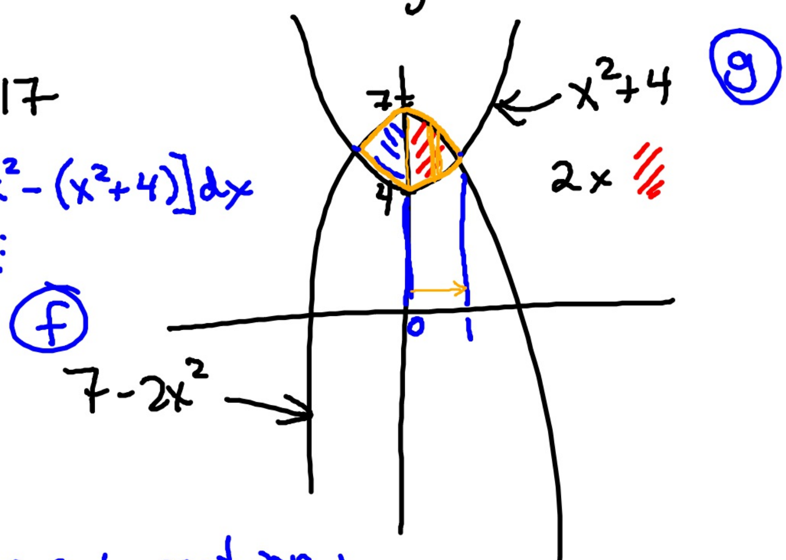
area: $\int_{-2}^{0}(2x^3-8x)dx+\int_{0}^{2}(8x-2x^3)dx$

regions enclosed by lines or curves

#17

area: $\underline{2}\int_{0}^{1}\left[7-2x^2-(x^2+4)\right]dx$

⋮

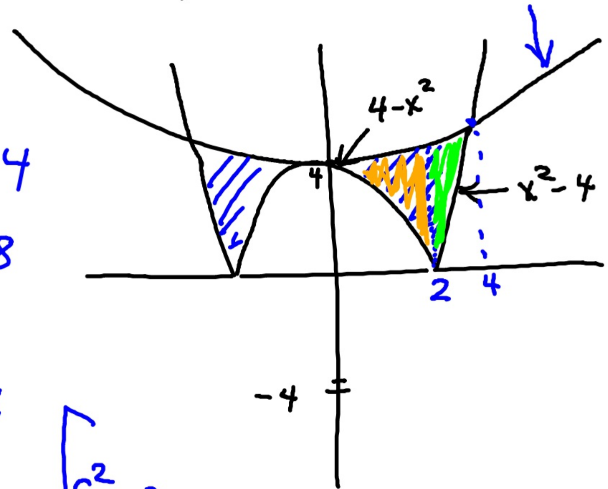


To find intersection:

$x^2+4=7-2x^2$

$3x^2=3 \quad x=\pm 1$

#21 $y = |x^2 - 4|$ $\quad y = \frac{x^2}{2} + 4$



$$x^2 - 4 = \frac{x^2}{2} + 4$$

$$2x^2 - 8 = x^2 + 8$$

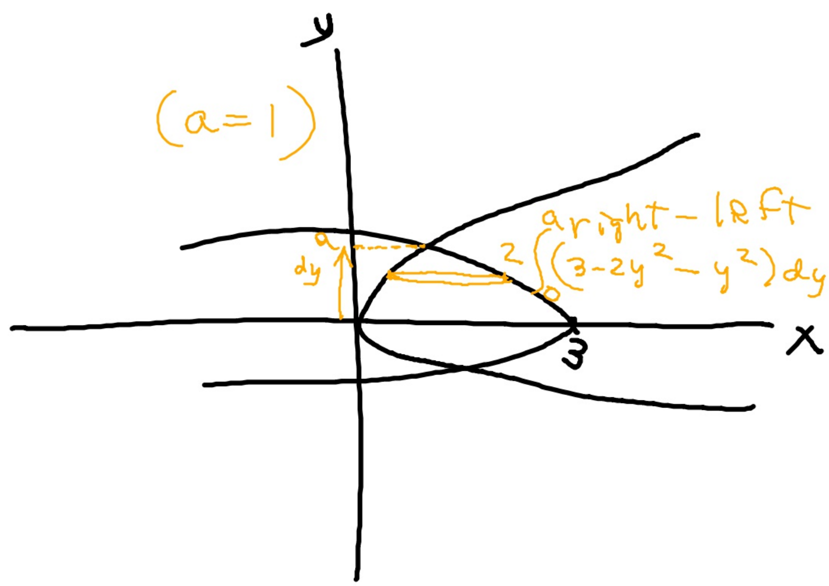
$$x^2 = 16$$

$$x = \pm 4$$

$$2\left[\int_0^2 \left[\frac{x^2}{2} + 4 - (4 - x^2)\right] dx + \int_2^4 \left[\frac{x^2}{2} + 4 - (x^2 - 4)\right] dx\right]$$

#24 $x - y^2 = 0 \quad x + 2y^2 = 3$

$x = y^2 \quad x = 3 - 2y^2$



$$y = |x|$$

$$= \begin{cases} -x, & x < 0 \\ x, & x \geq 0 \end{cases}$$