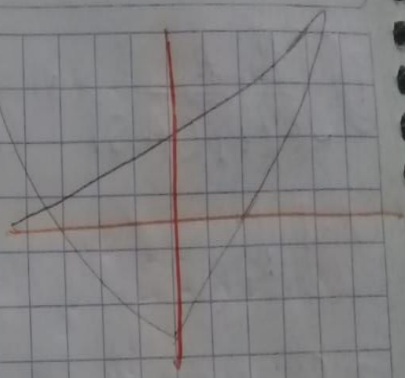
1. Calc

$$A = \int_a^b |f(x) - g(x)|\,dx$$

(a) b donde empieza



1) $A = \int_{-1}^{1} e^x - x^2 - 1$

$\int_{-1}^{1} e^x - \int_{-1}^{1} \frac{x^3}{3} - A$ Evaluar primero superior luego inferior.

$e^x - \frac{x^3}{3} + x \Big|_{-1}^{1} = 3.6883 \; u^2$

$= 0$

$= 4$

$x^2 - 4x - x - 4$

$x^2 - 2x - 4 - x$

$x^2 - 4x - x - 4$

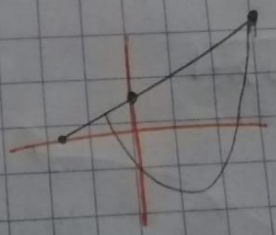
$x(x-1) - 4(x-1)$

$(x+1)(x-4)$

$$A = \int_{-1}^{4} x + 4 - (x^2 - 2x)$$

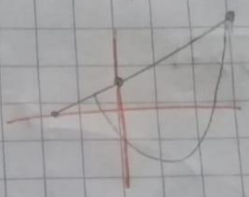
$$A = \int x\,dx + 4\int dx - \int x^2\,dx + 2\int x\,dx$$

$$\frac{x^2}{2} + 4x - \frac{x^3}{3} + x^2 \Big|_{-1}^{4} = 20.83333\ u^2$$



(7) $y = 2y^2$ $\quad x = 4 + y^2$

$\frac{x^2}{2} + 4x - \frac{x^3}{3} + x^2 \Big|_{-1}^{4} = 20.83333 \ u^2$



(7) $x = 2y^2 \quad , \quad x = 4 + y^2$

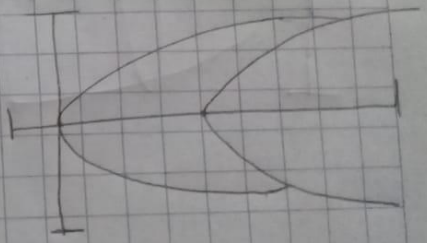
$2y^2 - 4 - y^2 = 0$

$y^2 - 4 = 0$

$y = \pm\sqrt{4}$

$y_1 = -2$

$y_2 = 2$

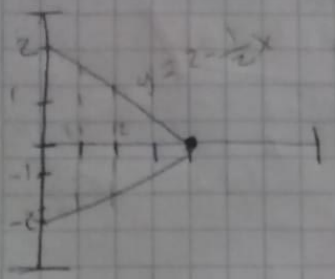


$A = \int_{-2}^{2} 4 + y^2 - (2y^2)\, dx$

$A = 10.667 \ u^2$

Volumenes

① $y = 2 - \frac{1}{2}x$, $y=0$, $x=1$, $x=2$



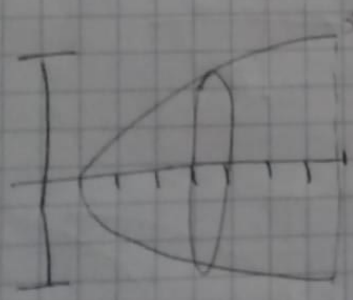
$V = \pi \int_a^b [R(x)]^2 dx$

$V = \pi \int_1^2 (2 - \frac{1}{2}x)^2$

$V = \pi \int_1^2 (-2x + 4 + \frac{1}{4}x^2)\, dx$

$V = \pi [4x - x^2 + \frac{1}{12}x^3]_1^2 = 1.047 u^3$

② $y = \sqrt{x-1}$, $y=0$, $x=5$

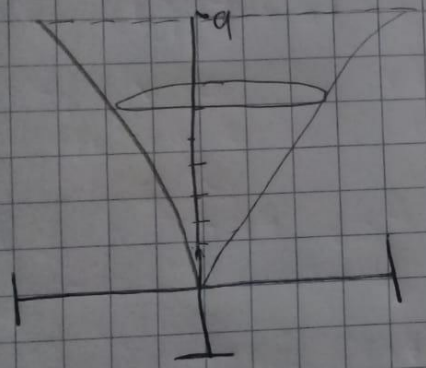


$V = \pi \int_1^5 (\sqrt{x-1})^2$

$V = \pi \left[\frac{x^2}{2} - x\right]_1^5$

$= 25.327 u^3$

③ $y = 2\sqrt{y}$ $x = 0$ $y = 9$



$$V = \pi \int_0^9 (2\sqrt{y})^2$$

$$V = \pi 2y^2 \Big|_0^9 = 508.9380 \; u^3$$