Math 141
Quiz 2
Zepptember 9, 2015

name Lou Stewell

SET UP the integral to find the area of the region bounded by the graphs of graphs of $y = x^2 - 2x$ and $y = 2x + 5$.

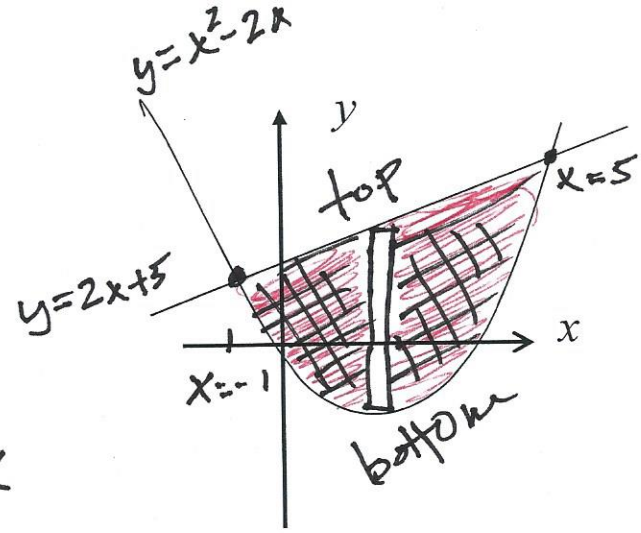
limits:

$x^2 - 2x = 2x + 5$

$x^2 - 4x - 5 = 0$

$(x-5)(x+1) = 0$

$x = 5, -1$



$$A = \int_{-1}^{5} \left[(2x+5) - (x^2 - 2x) \right] dx$$

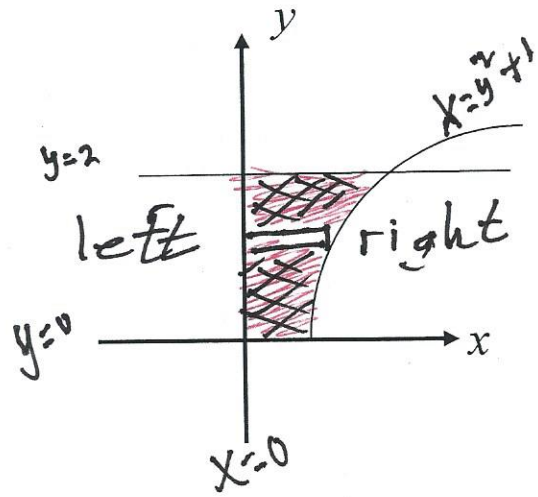
horizontal rectangles

SET UP the integral to find the area of the region bounded by the graphs of $y = \sqrt{x-1}$, $x = 0$, $y = 0$ and $y = 2$.

$y = \sqrt{x-1}$

$y^2 = x - 1$

$y^2 + 1 = x$



$$A = \int_{0}^{2} \left[(y^2+1) - 0 \right] dy$$

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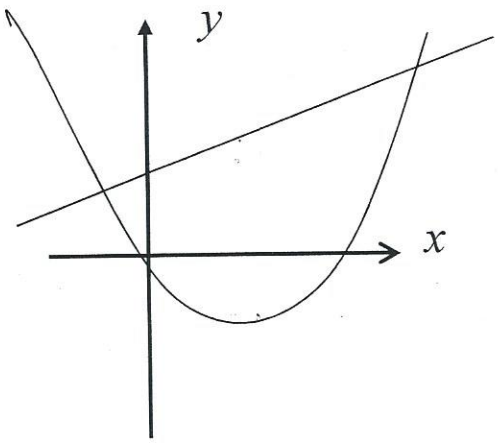
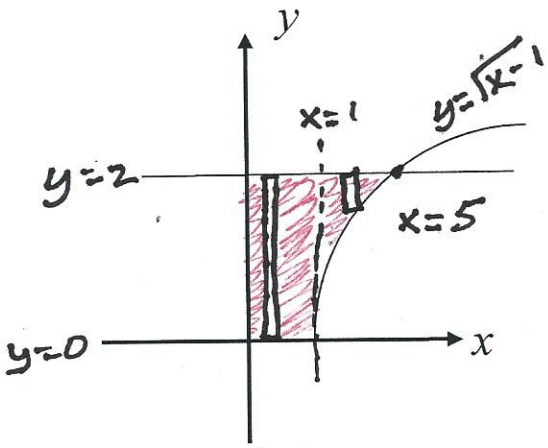


vertical rectangles "two regions"

SET UP the integral to find the area of the region bounded by the graphs of $y = \sqrt{x-1}$, $x = 0$, $y = 0$ and $y = 2$.

$$A = \int_0^1 (2-0)\,dx + \int_1^5 \left(2 - \sqrt{x-1}\right)dx$$



limit:

$2 = \sqrt{x-1}$

$4 = x-1$

$5 = x$