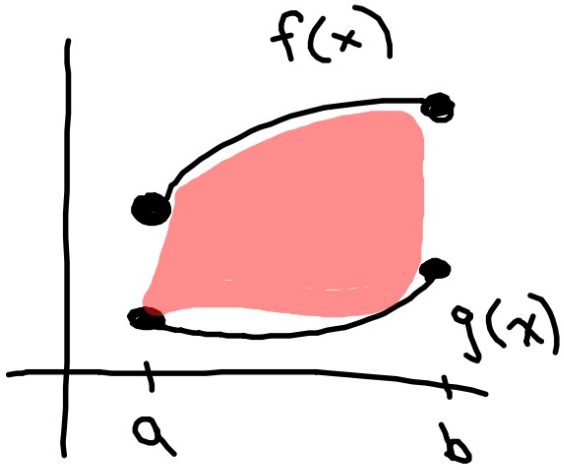
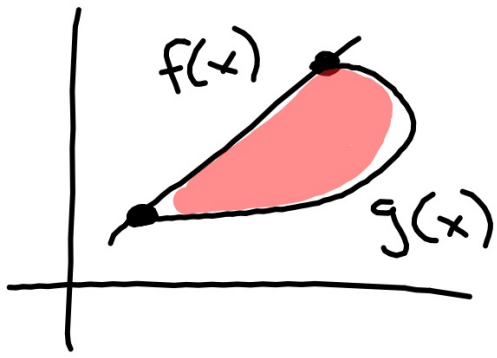
7.1 B Horizontal Area

WCID? I can find area between two functions

A. Think

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



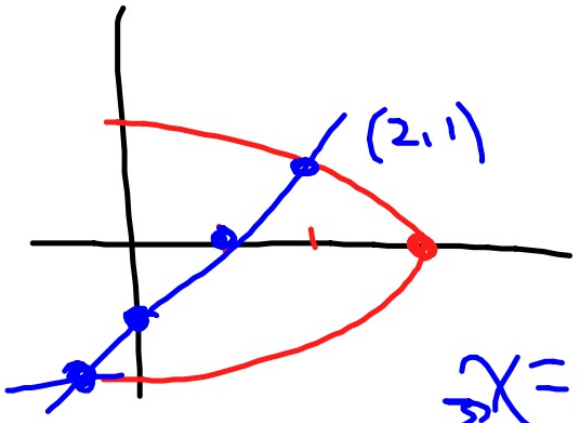
1. 

2. Right

2. Some functions are "easier" in terms of y

3. Right - Left

Ex. $f(y) = 3 - y^2$ $g(y) = y + 1$



$x = y + 1$

x	y
1	0
2	1
3	2
0	-1

$3 - y^2 = y + 1$

$y^2 + y - 2 = 0$

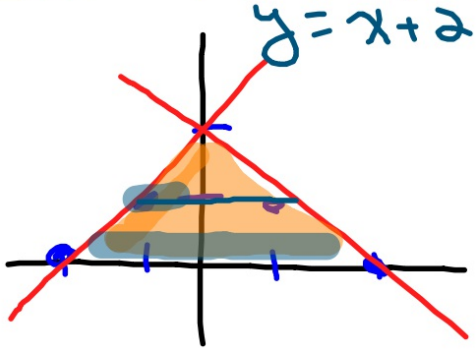
$(y + 2)(y - 1) = 0$

$y = -2, 1$

$x = y + 1$

$x - y = 1$

Ex. $f(x) = x + 2$ $g(x) = -x + 2$, $y = 0$



$y = -x + 2$

$x = -y + 2$

$$\int_0^2 (-y+2) - (y-2)\,dy$$

$$\int_0^2 -2y + 4\,dy$$

$$-y^2 + 4y \Big|_0^2$$

$$-4 + 8 = 4$$

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