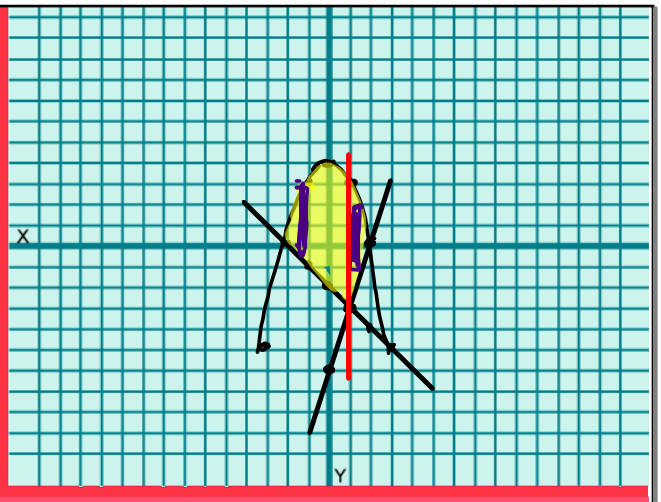
AREA 2

Find the area under $y=-x^2+4$ and above $y=-x-2$ and $y=3x-6$.



$$\int_{-2}^{1}\left[(-x^2+4)-(-x-2)\right]dx$$

$$+\int_{1}^{2}\left[(-x^2+4)-(3x-6)\right]dx = \frac{50}{3}\ \text{units}^2$$

Find the area between:

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

$x + 2 = y$

$x = -y^2 + 4$

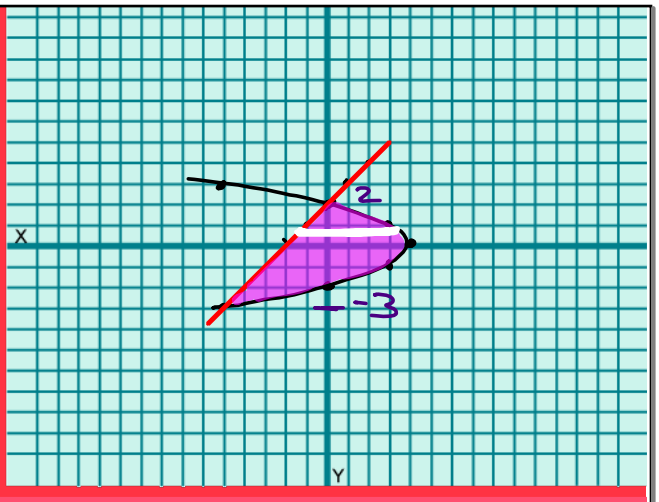
$x = y - 2$

0	0
4	1
	2
a	3

R − L

$$\int_{-3}^{2} [(-y^2 + 4) - (y - 2)]\,dy$$

$$= \frac{125}{6} \text{ units}^2$$



Find area between $xy=1$ and $x+y^2=10$.

$xy=1$

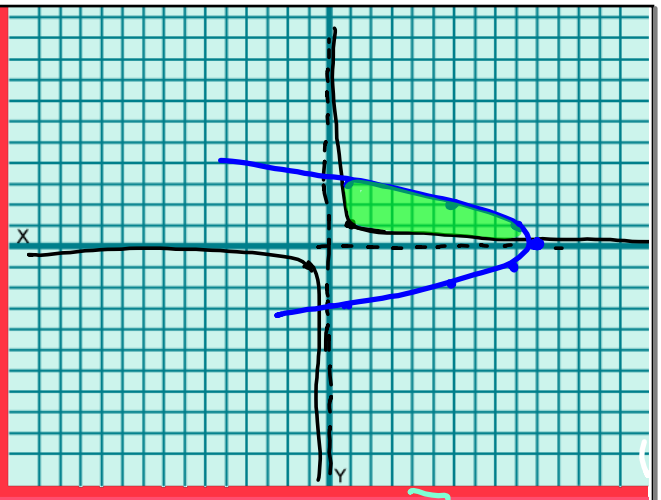
$y=\frac{1}{x}$

$x=\frac{1}{y}$

$x+y^2=10$

$x=10-y^2$

$-y^2+10$



R − L

$$\int_{0.1}^{3.11}\left(10-y^2-\frac{1}{y}\right)dy$$

$y\left[\frac{1}{y}=10-y^2\right]$

$1=10y-y^3$

$y^3-10y+1=0$

$y=3.11 \quad y=0.1$

g) $x = y^3 - y$

$x = 0$

x	y
0	0
0	1
6	2
$\frac{1}{8} - \frac{1}{2} = -\frac{3}{8}$	$\frac{1}{2}$
$-1 + 1 = 0$	-1
$-\frac{1}{8} + \frac{1}{2} = \frac{3}{8}$	$-\frac{1}{2}$