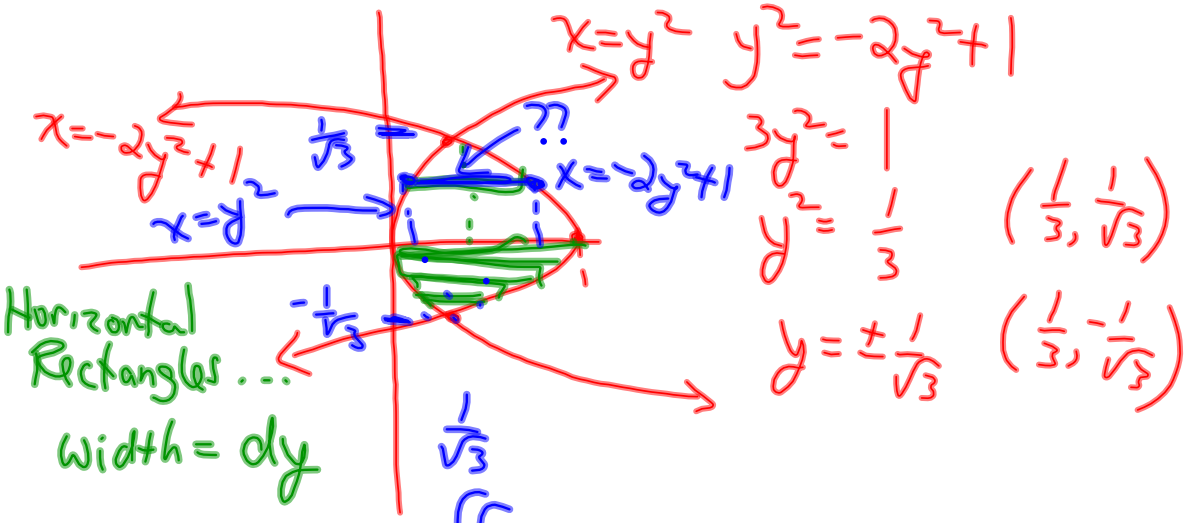
Sometimes horizontal rectangles are a better option...

Example:

Determine the area of the region bound by the curves $x = y^2$ and $x = -2y^2 + 1$.



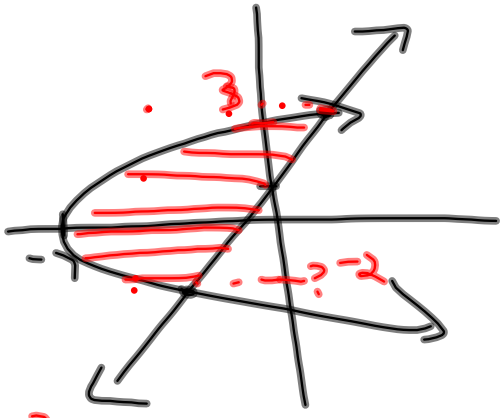
$$\int_{-\frac{1}{\sqrt{3}}}^{\frac{1}{\sqrt{3}}} \left[(-2y^2+1) - y^2\right] dy$$

$$\int_{-\frac{1}{\sqrt{3}}}^{\frac{1}{\sqrt{3}}} (-3y^2+1)\, dy$$

$$= -y^3 + y \Big|_{-\frac{1}{\sqrt{3}}}^{\frac{1}{\sqrt{3}}}$$

$$= 0.76984^2$$

Determine the area bounded by the curves $x+7=y^2$ and $y=x+1$.



$x=y^2-7$ $\quad x=y-1$

$y^2-7=y-1$

$y^2-y-6=0$

$(y-3)(y+2)=0$

$y=3,-2$

$$\int_{-2}^{3}\left[(y-1)-(y^2-7)\right]dy$$

$$\int_{-2}^{3}(-y^2+y+6)\,dy$$

$$=\left(-\frac{y^3}{3}+\frac{y^2}{2}+6y\right)\Bigg|_{-2}^{3}$$

$$=\frac{125}{6}$$ ✓

Practice Set...

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#1, 3, 5, 6, 9, 11, 13, 17, 19, 27, 28

$= e^{\pi i} - 2$ $= \frac{71}{6}$

Determine the area of the region bound by the curves
$x + y = 1$ and $x + y = 5$ and $y = 2x + 1$ and $y = 2x + 6$.