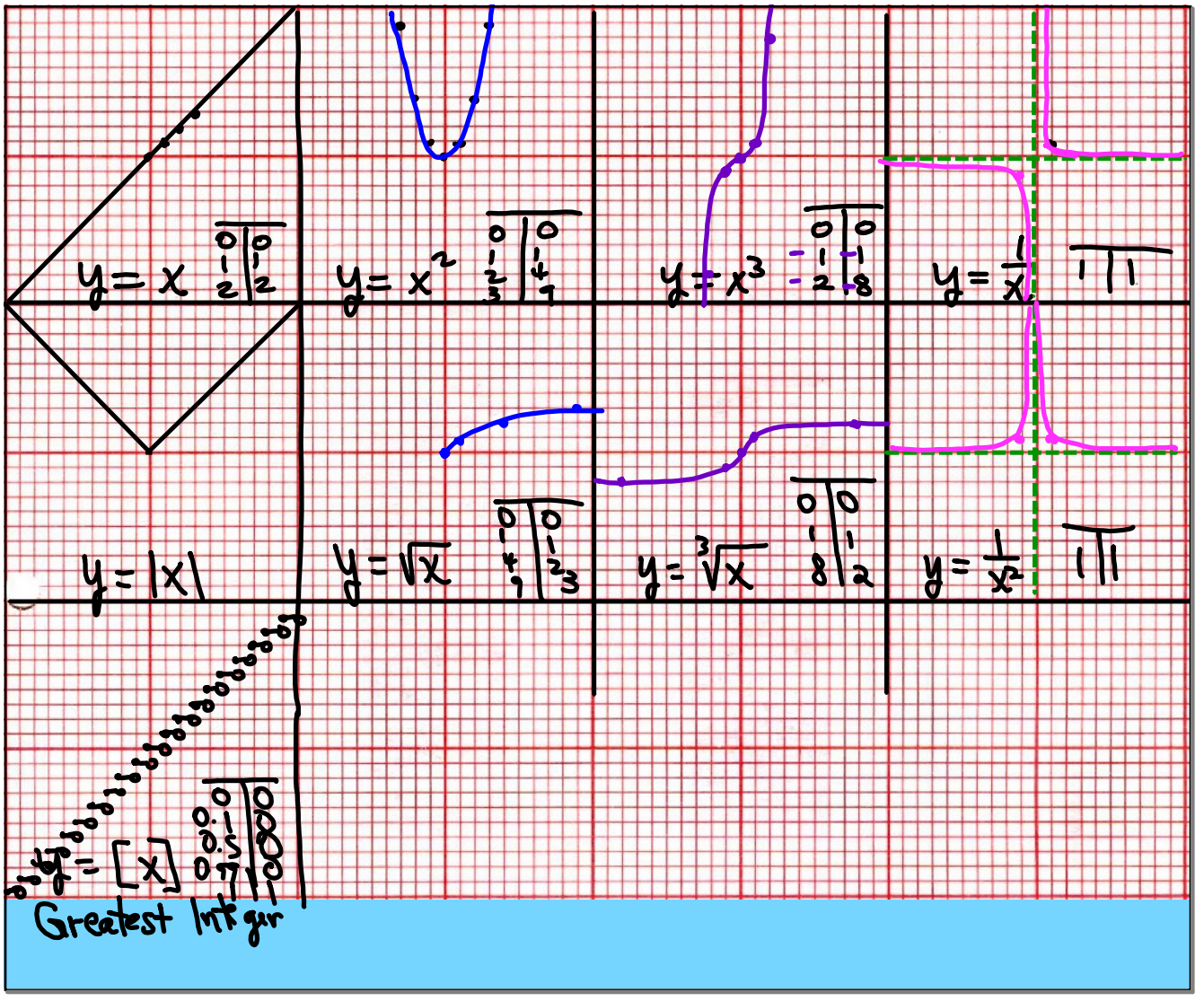
August 28, 2025



Transformation Rules

$f(x) + c$ up c units

$f(x) - c$ down c units

$f(x+c)$ left c units

$f(x-c)$ right c units

$-f(x)$ flip over x-axis (change y-coord)

$f(-x)$ flip over y-axis (change x-coord)

$af(x) =$ stretches/shrinks Vertically (multiplies y-coord)

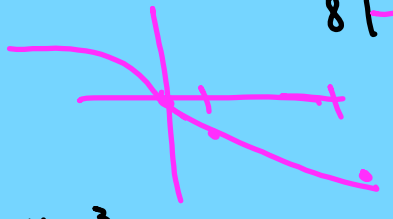
$f(ax) =$ stretches/shrinks horizontally

$f(x) = \sqrt[3]{x} + 4$

$f(x) = \sqrt[3]{x+4}$

$y = -\sqrt[3]{x}$

0	0
1	-1
8	-2



$y = \sqrt[3]{-x}$

$y = 2\sqrt[3]{x}$

0	0
1	2
8	4

August 28, 2025

$y = -3(x+4)^2 + 6$

left 4

up 6

0	0
1	-3
2	-12
3	-27

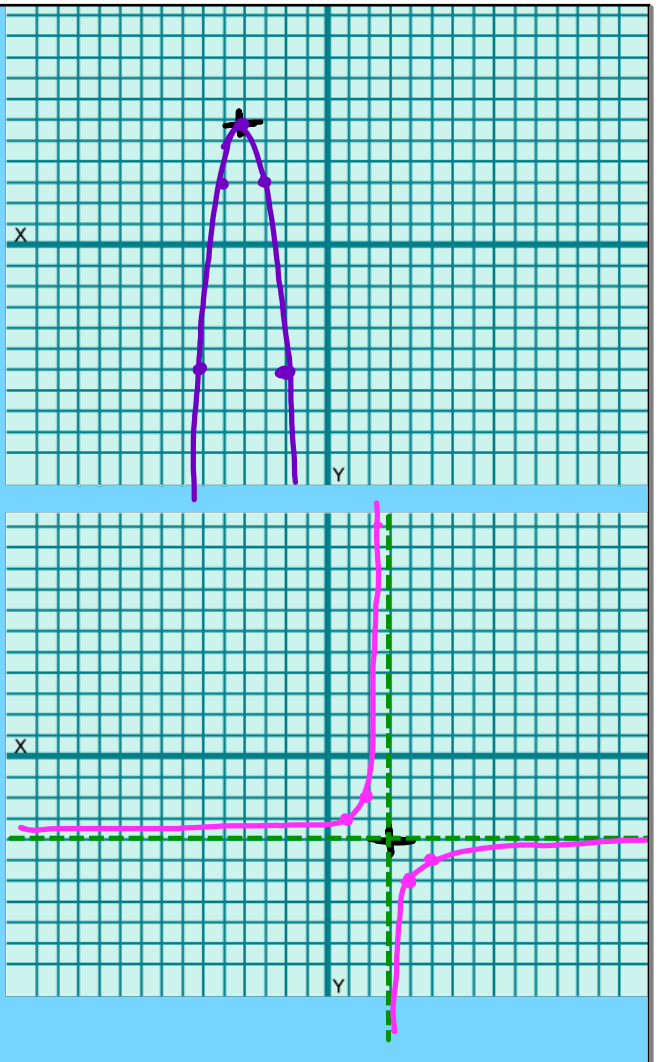
$-2\left(\frac{1}{x-3}\right)$

$y = \frac{-2}{x-3} - 4$

Right 3

Down 4

1	-2

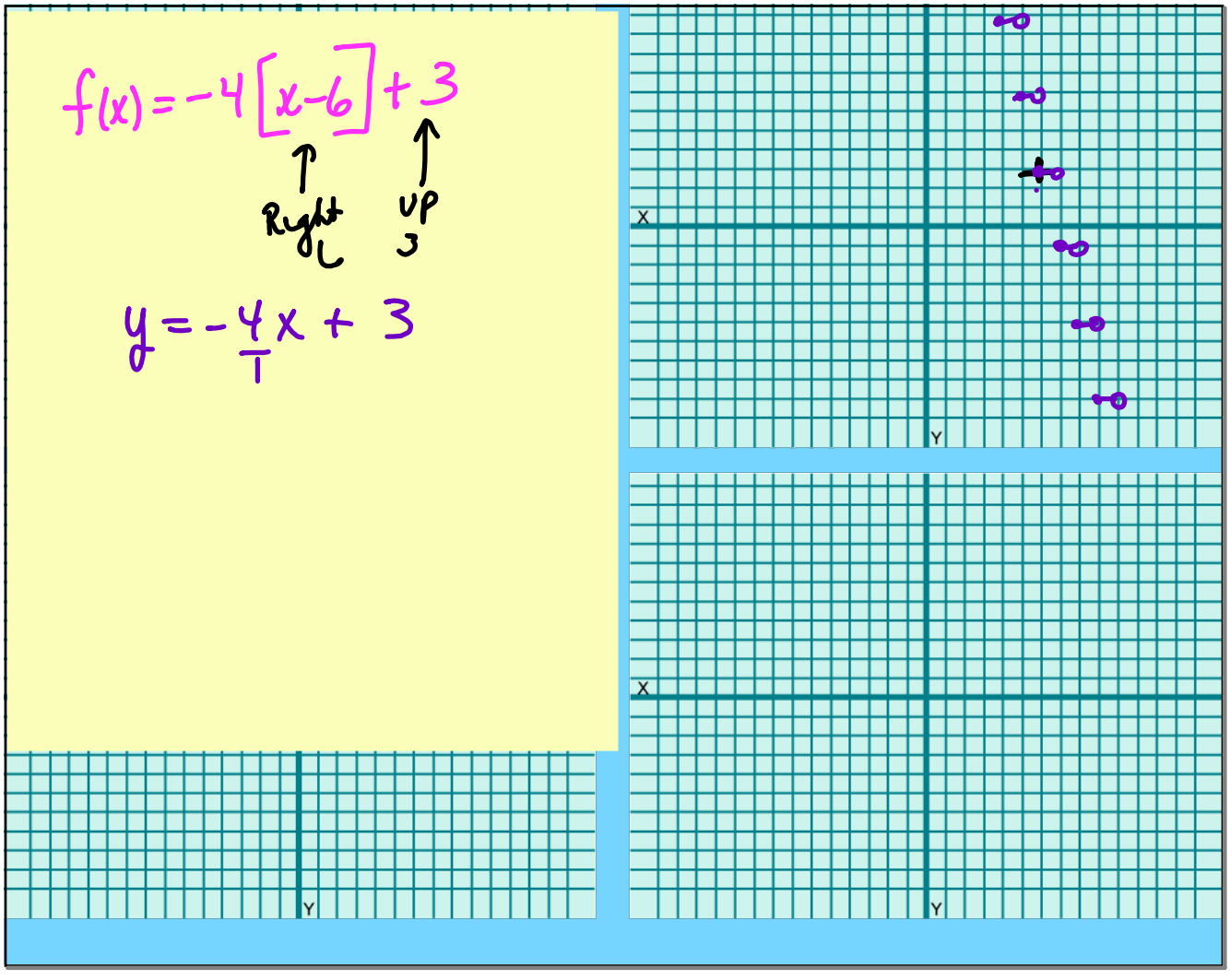


August 28, 2025

$f(x) = -4[x-6] + 3$

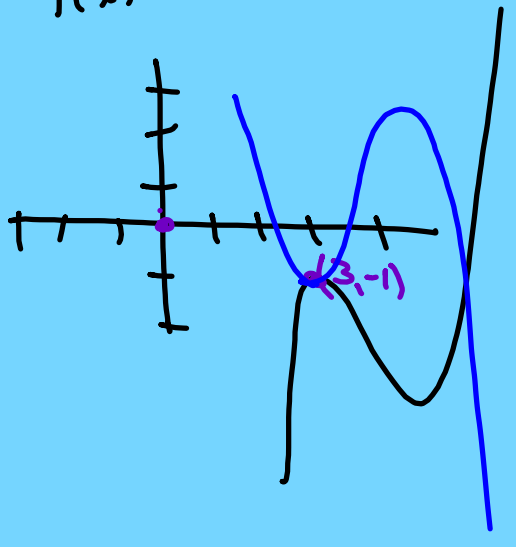
Right 6 (L) Up 3

$y = -\frac{4}{1}x + 3$



$-(x^3-3x^2)$

$f(x) = x^3 - 3x^2$



$f(x) = (x-3)^3 - 3(x-3)^2 - 1$

$= -(x-3)^3 + 3(x-3)^2 - 1$

$f(x) = \sin x$

$f(x) = \sin(x-\pi) + 4$