

GRAPHING

Move left $f(x+c)$

Move right $f(x-c)$

Move up $f(x)+c$

Move down $f(x)-c$

Flips over x-axis $-f(x)$

Flips over y-axis $f(-x)$

$a f(x)$ $0 < |a| < 1$ [vert. shrink
horiz stretch

$|a| > 1$ [vert. stretch
horiz shrink

$f(ax)$ Changes
x-coord.

$$y = \sqrt{ax}$$

0	0
2	1
8	2
18	3

$$y = x^2$$

$$y = (x+3)^2$$

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

$$y = x^2 + 3$$

$$y = x^2 - 3$$

$$y = -x^2$$

$$y = (-x)^2$$

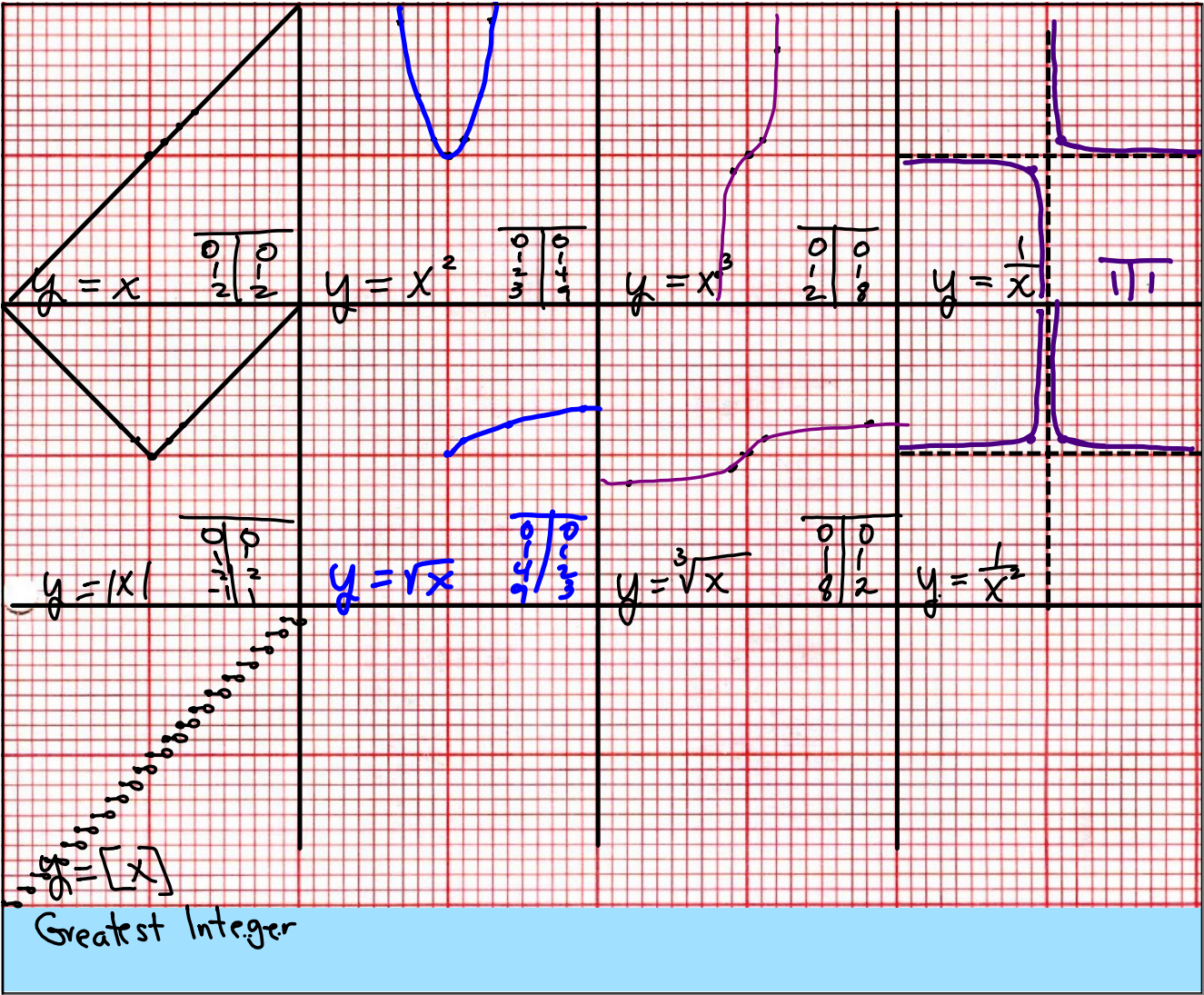
$$y = \sqrt{x}$$

$$y = \sqrt{-x}$$

$$y = \frac{1}{2}x^2$$

0	0
1	1 ^{1/2}
2	2
3	4.5

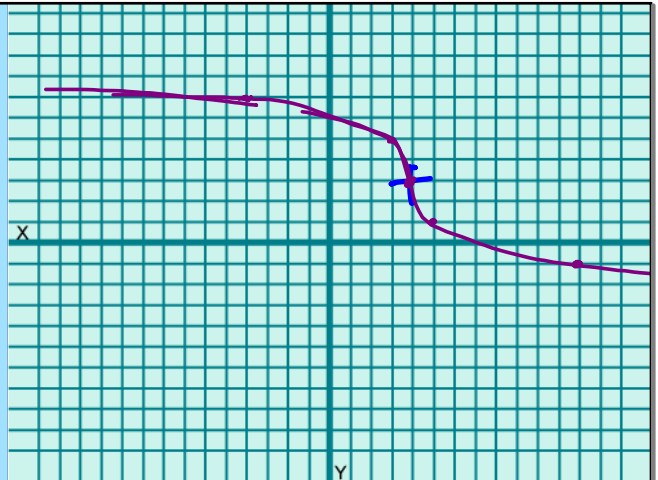
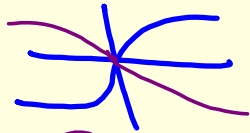




$$y = -2\sqrt[3]{x-4} + 3$$

right 4 up 3

0	0
1	x - 2
8	2 - 4

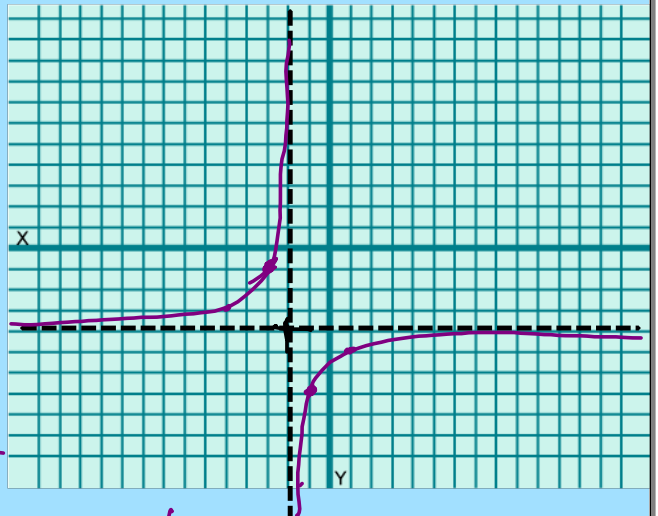


$$y = \frac{-3}{x+2} - 4$$

Left 2 Down 4

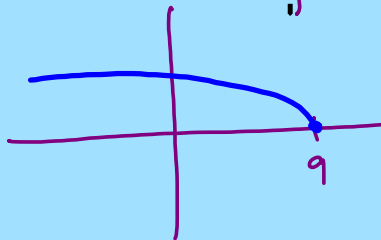
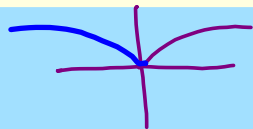
$$-3 \cdot \frac{1}{x+2}$$

1	x - 3
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$$y = \sqrt{9-x} = \sqrt{-(x-9)}$$

Right



$$y = \frac{5x^3 - 2x}{x^2 + 7}$$

Move right 2, Down 4

$$y = \frac{5(x-2)^3 - 2(x-2) - 4}{(x-2)^2 + 7}$$

$$\frac{10}{9} \quad \frac{10}{9} \quad \frac{10}{9} \cdot$$

$$\frac{-1}{9} \quad \frac{-1}{9} \quad \frac{-1}{9} = 27$$