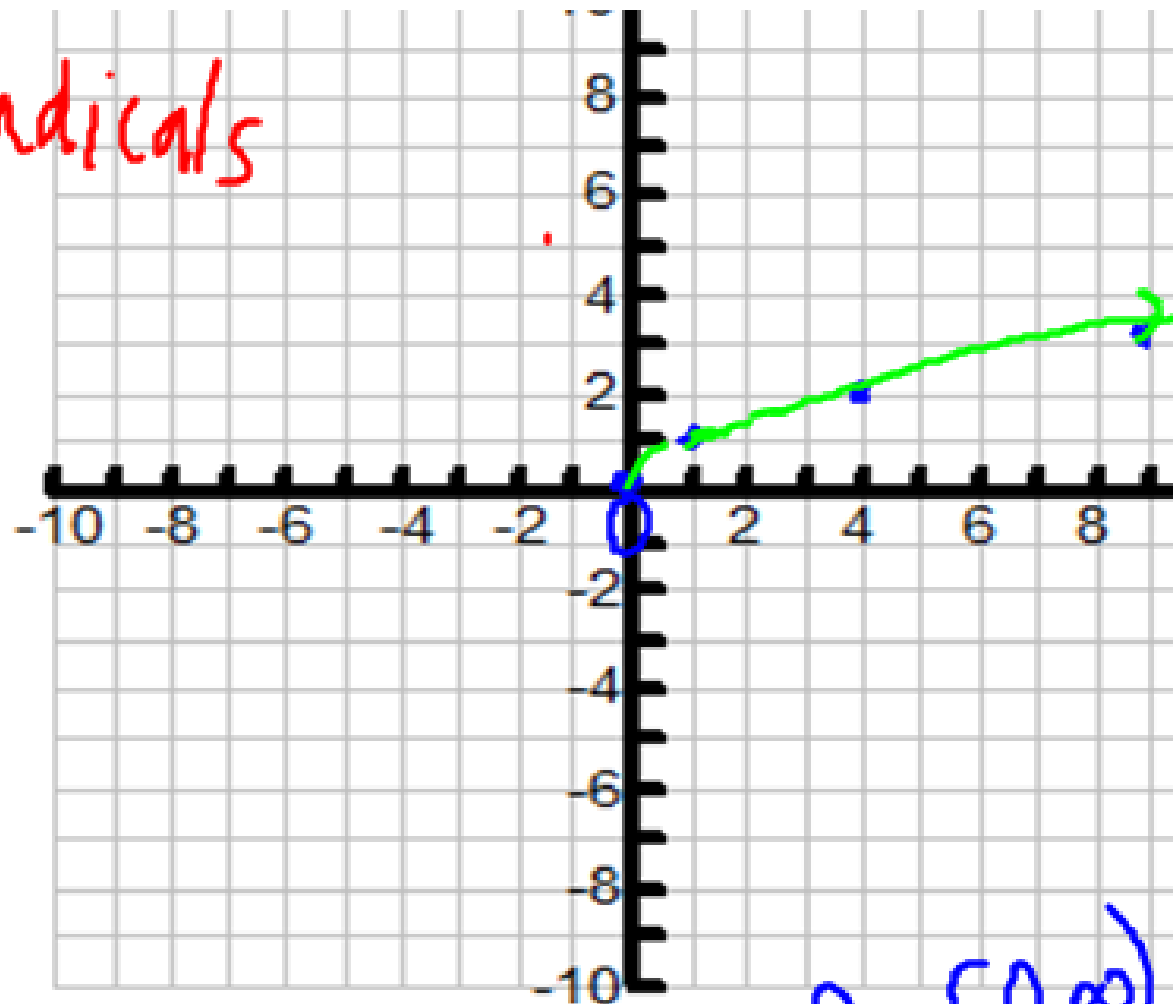


6.8 Graphing Radicals

① $y = \sqrt{x}$

x	y
0	$\sqrt{0} = 0$
1	$\sqrt{1} = 1$
4	$\sqrt{4} = 2$
9	$\sqrt{9} = 3$



Domain: $x \geq 0$ $[0, \infty)$

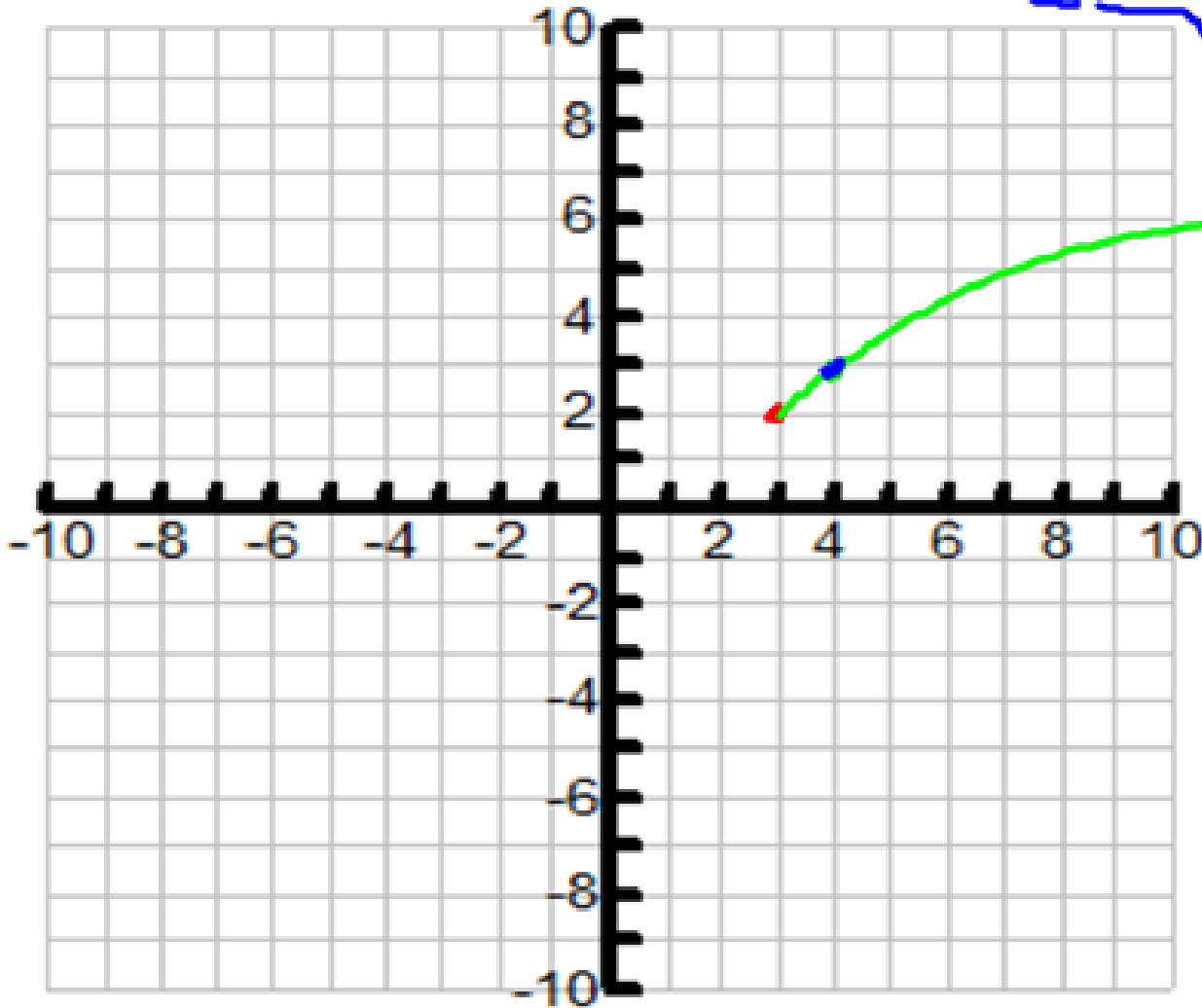
Range: $y \geq 0$ $[0, \infty)$

2

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

$R: 3$ $U: 2$

$$D: x \geq 3 \quad [3, \infty)$$
$$R: y \geq 2 \quad [2, \infty)$$

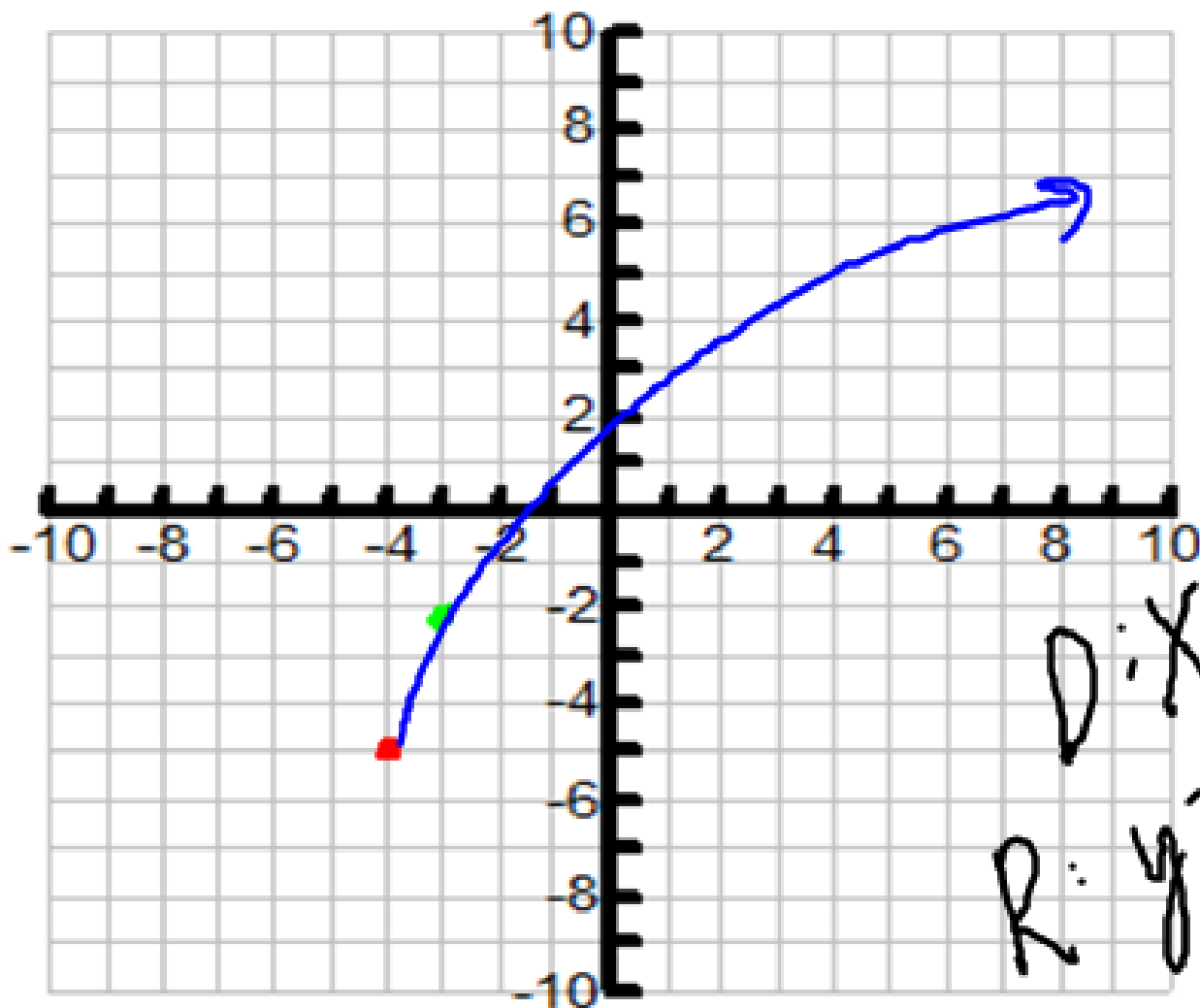


③

$$y = \frac{3}{1} \sqrt{x+4} - 5$$

L4 DS

vertical stretch by a factor of 3



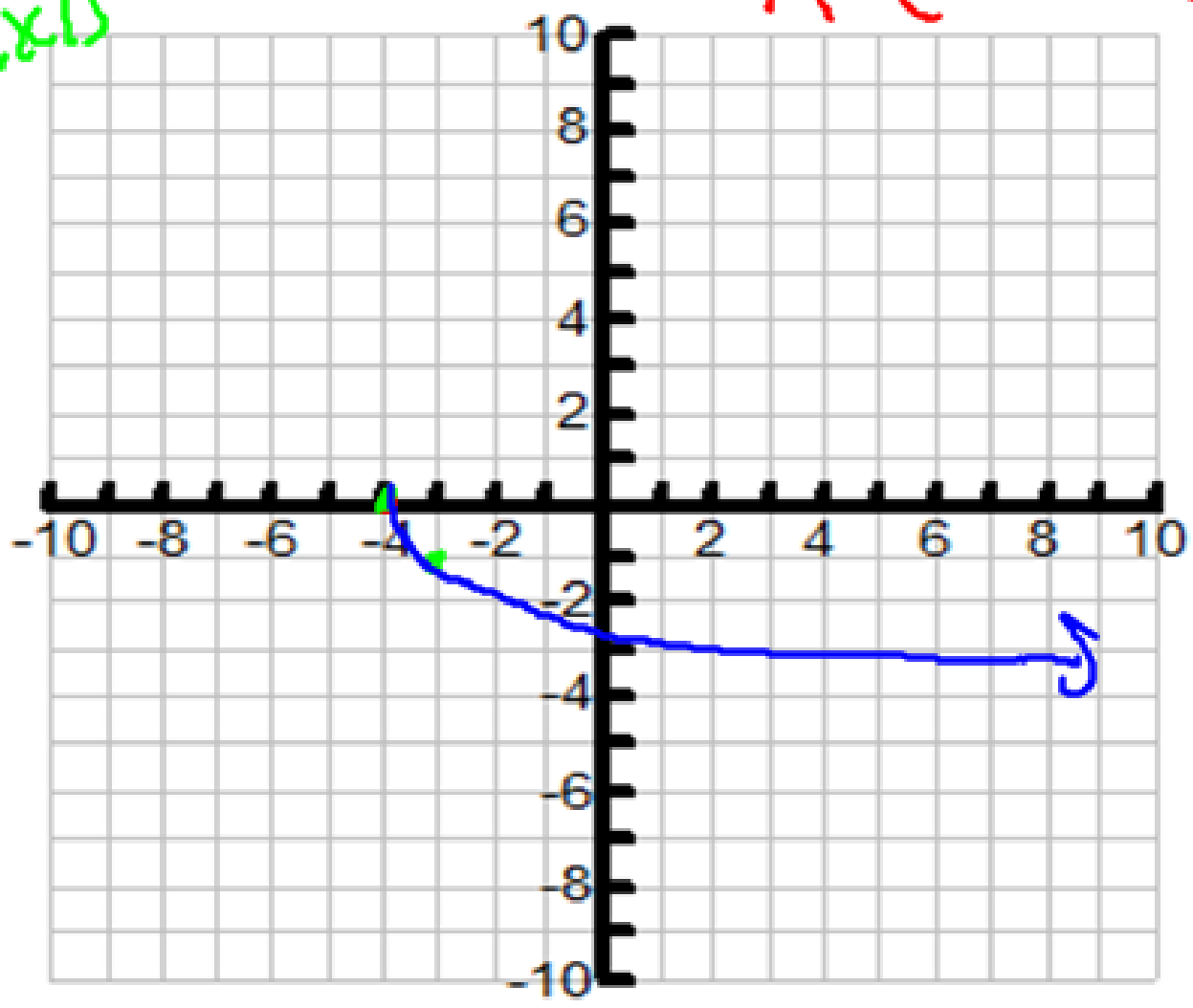
D: $x \geq -4$, $[-4, \infty)$
R: $y \geq -5$, $[-5, \infty)$

④ $y = -\sqrt{x+4}$
L4

flip over
x-axis

$D: [-4, \infty)$ $x \geq -4$

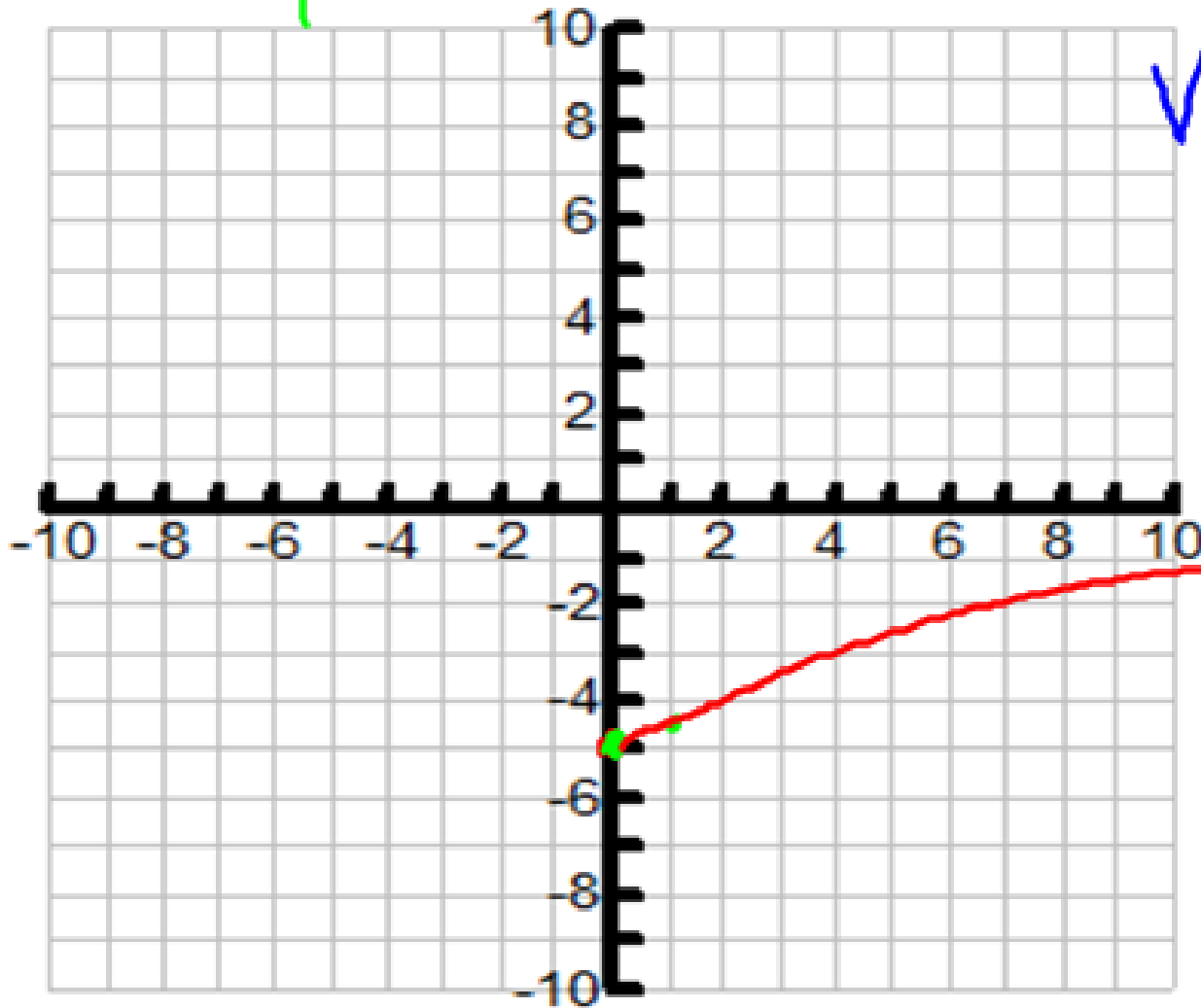
$R: (-\infty, 0]$ $y \leq 0$



⑤

$$y = \frac{1}{2} \sqrt{x} - 5$$

DS



vertical
shrink
by $\frac{1}{2}$

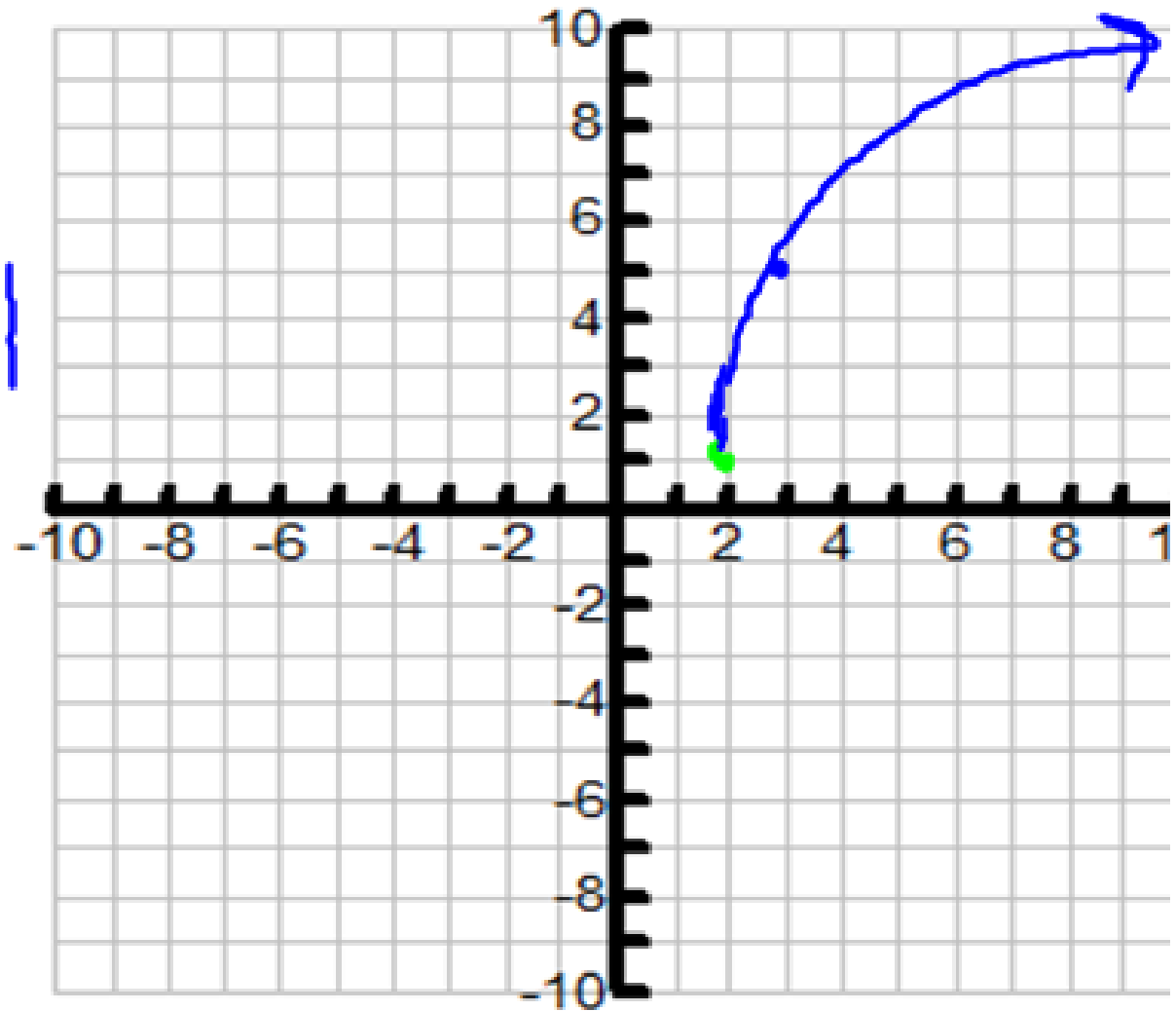
$$y = a\sqrt{x-h} + k$$

⑥

$$y = \sqrt{16x - 32} + 1$$

$$y = \sqrt{16(x-2)} + 1$$

$$y = 4\sqrt{x-2} + 1$$



⑦

$$3\sqrt{x-2} + 1 = 7$$

Solve by graphing:

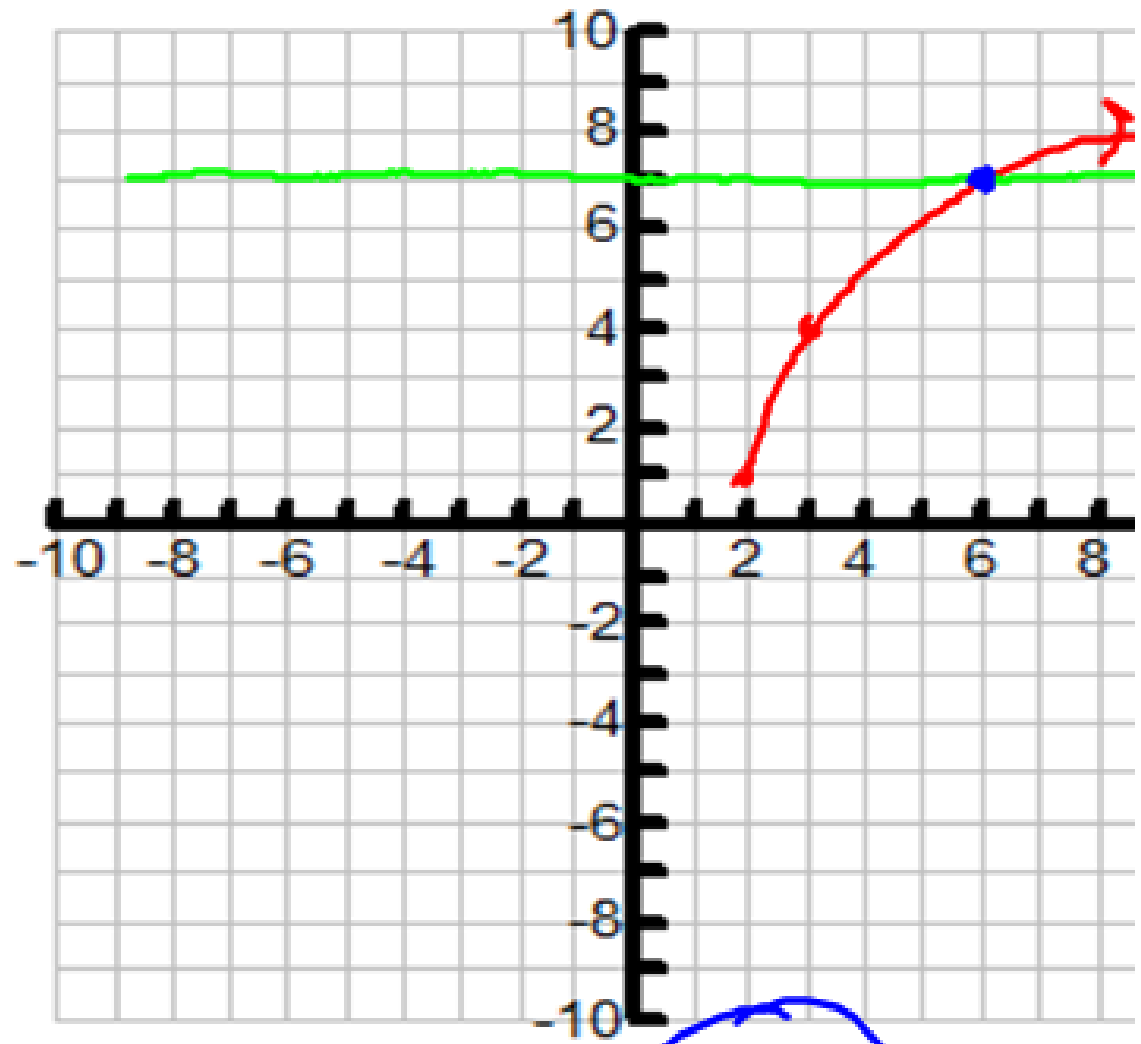
- ① $y_1 =$ left side of equation
 - ② $y_2 =$ right side of equation
 - ③ Find point of intersection
- 2nd Trace #5
Enter 3 times
- top left

①

$$\sqrt[3]{x-2} + 1 = 7$$

$$y = \sqrt[3]{x-2} + 1$$

$$y = 7$$



$$x = 6$$

⑦ Algebraically

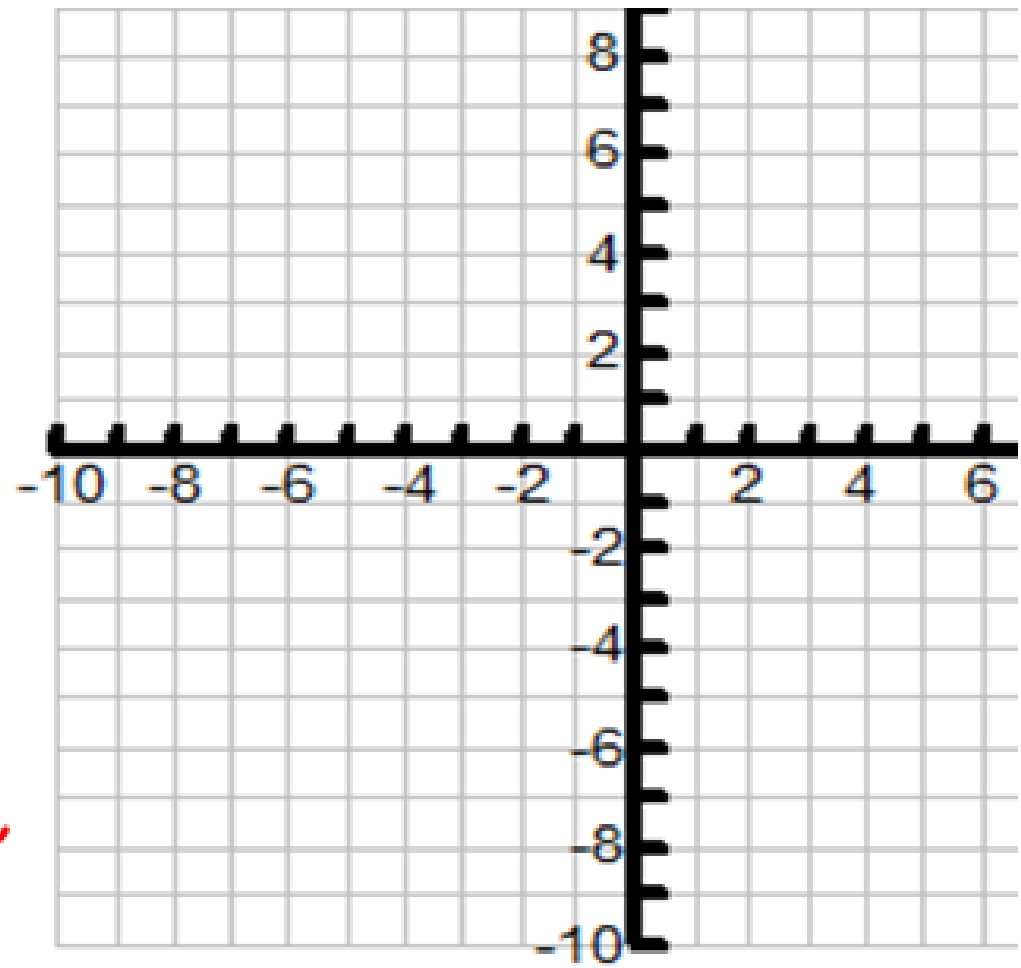
$$3\sqrt{x-2} + 1 = 7$$

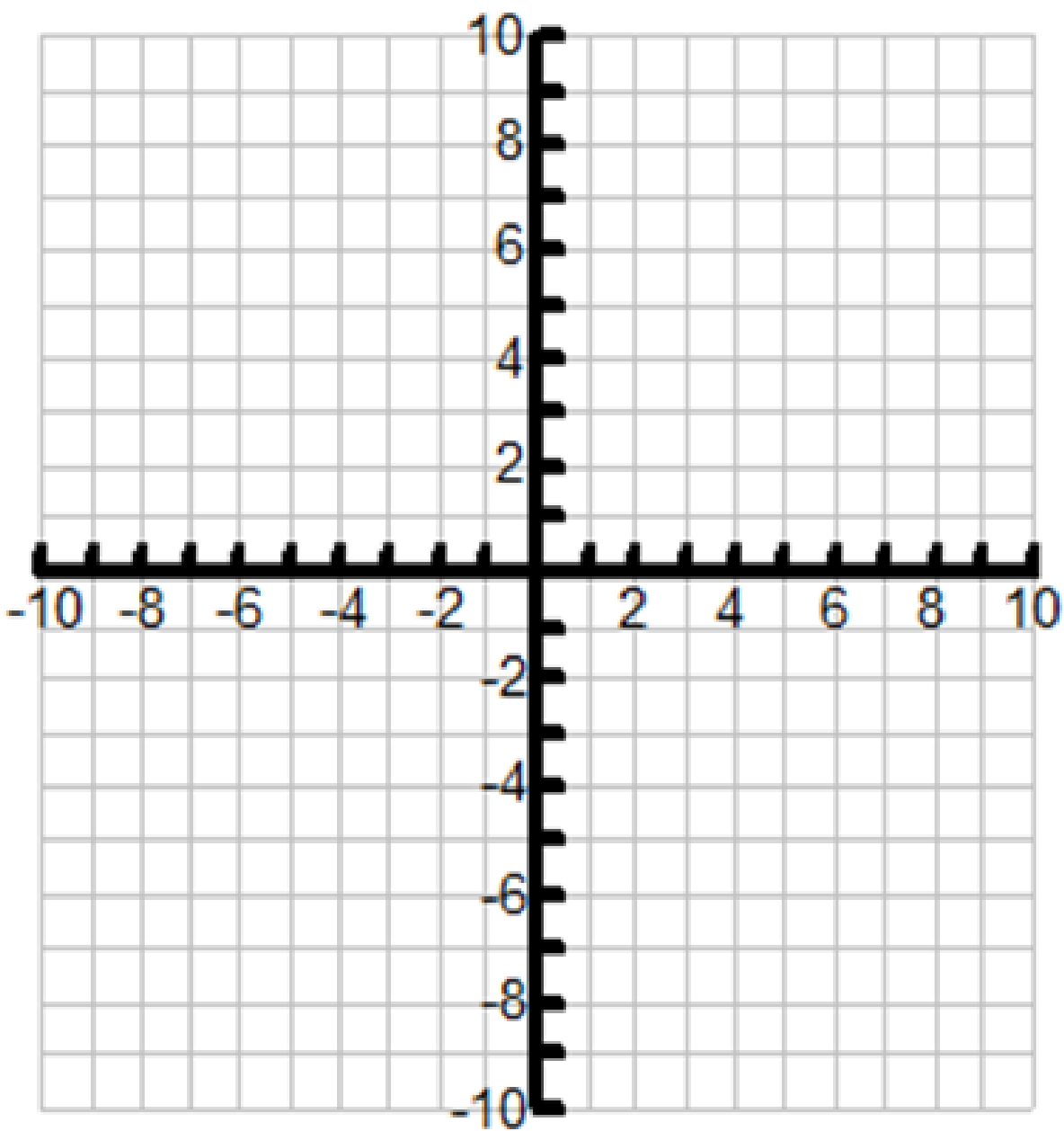
$$3\sqrt{x-2} = 6$$

$$\left(\sqrt{x-2}\right)^2 = (2)^2$$

$$x-2 = 4$$

$$x = 6$$





⑦ Solve $\sqrt[3]{x-2} + 1 = 7$

Solve by graphing

① $Y_1 =$ left side of equation

② $Y_2 =$ right side of equation

③ Find point of intersection

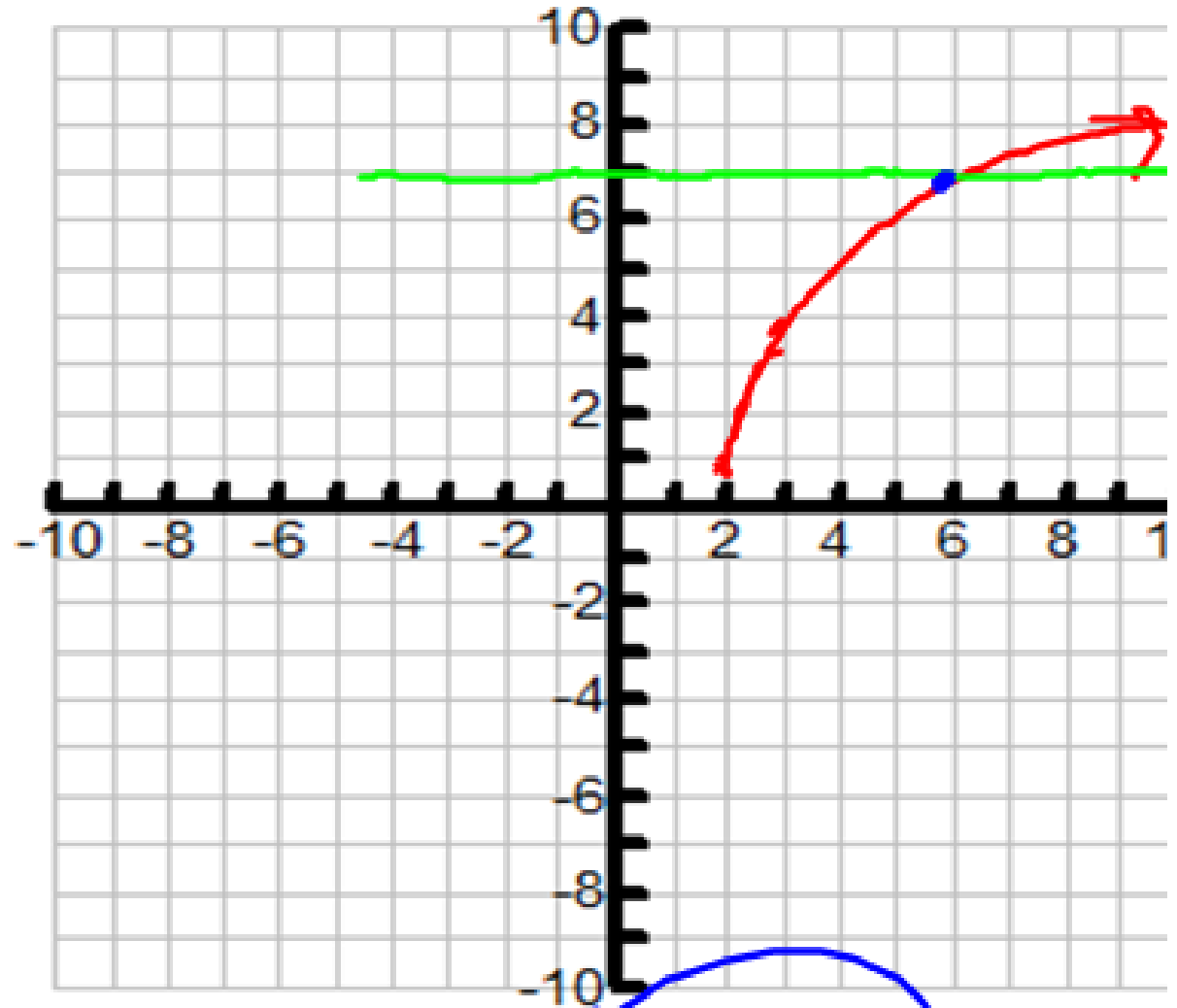
upper left

2nd Trace
#5
Enter 3 times

$$y = 3\sqrt{x-2} + 1$$

~~Handwritten scribble~~

$$y = 7$$



$$x = 6$$

