

Radical Functions – Let's Graph!!

$$f(x) = a \sqrt{b(x-h)} + k$$



1. $f(x) = \sqrt{x+6}$

shift $(0,0)$
to the left

6
↳ $(-6, 0)$



2. $f(x) = 3\sqrt[3]{x}$

vertical stretch

$(0,0)$

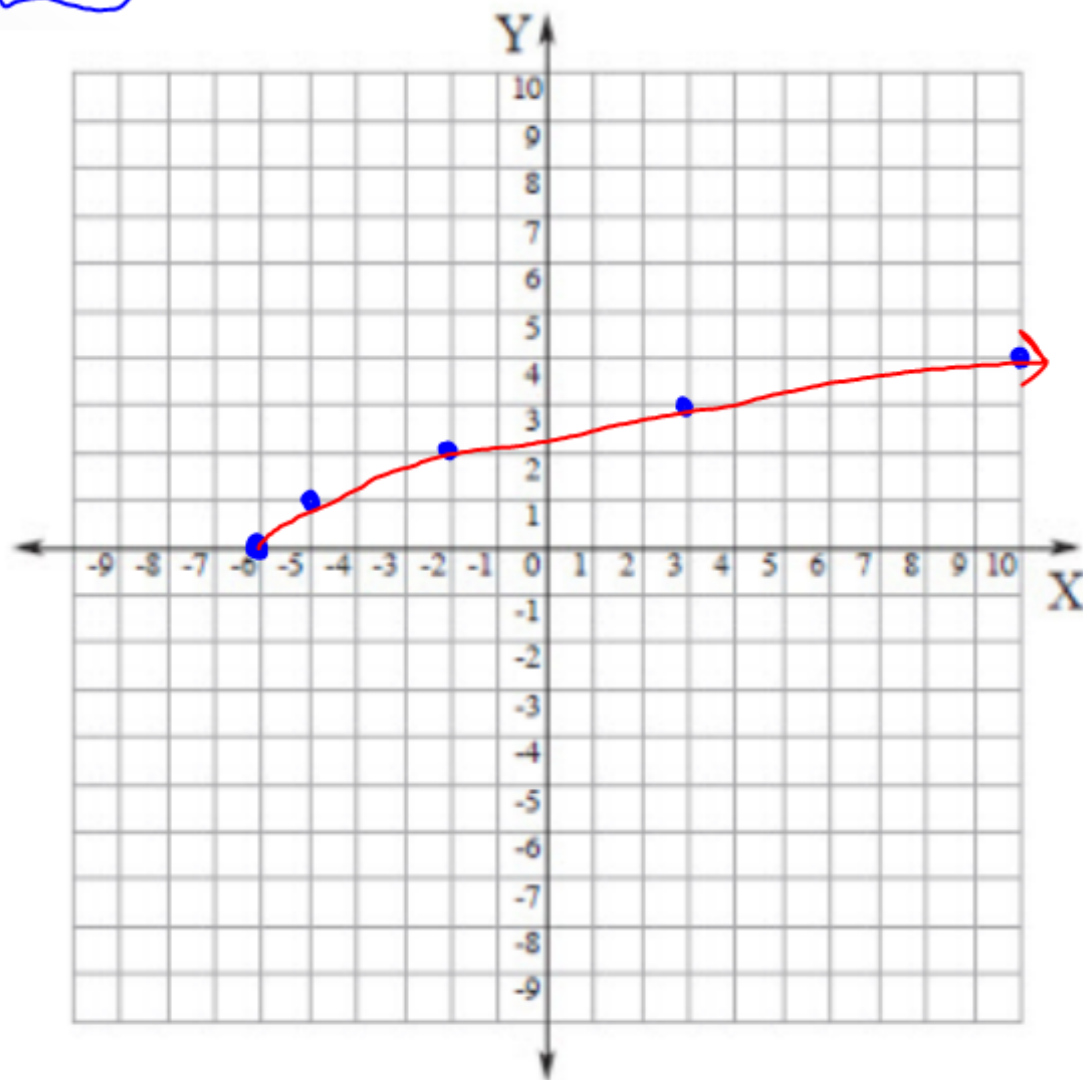
$$1. f(x) = \sqrt{x+6}$$

table

$$\boxed{2} \quad \sqrt{x+6}$$

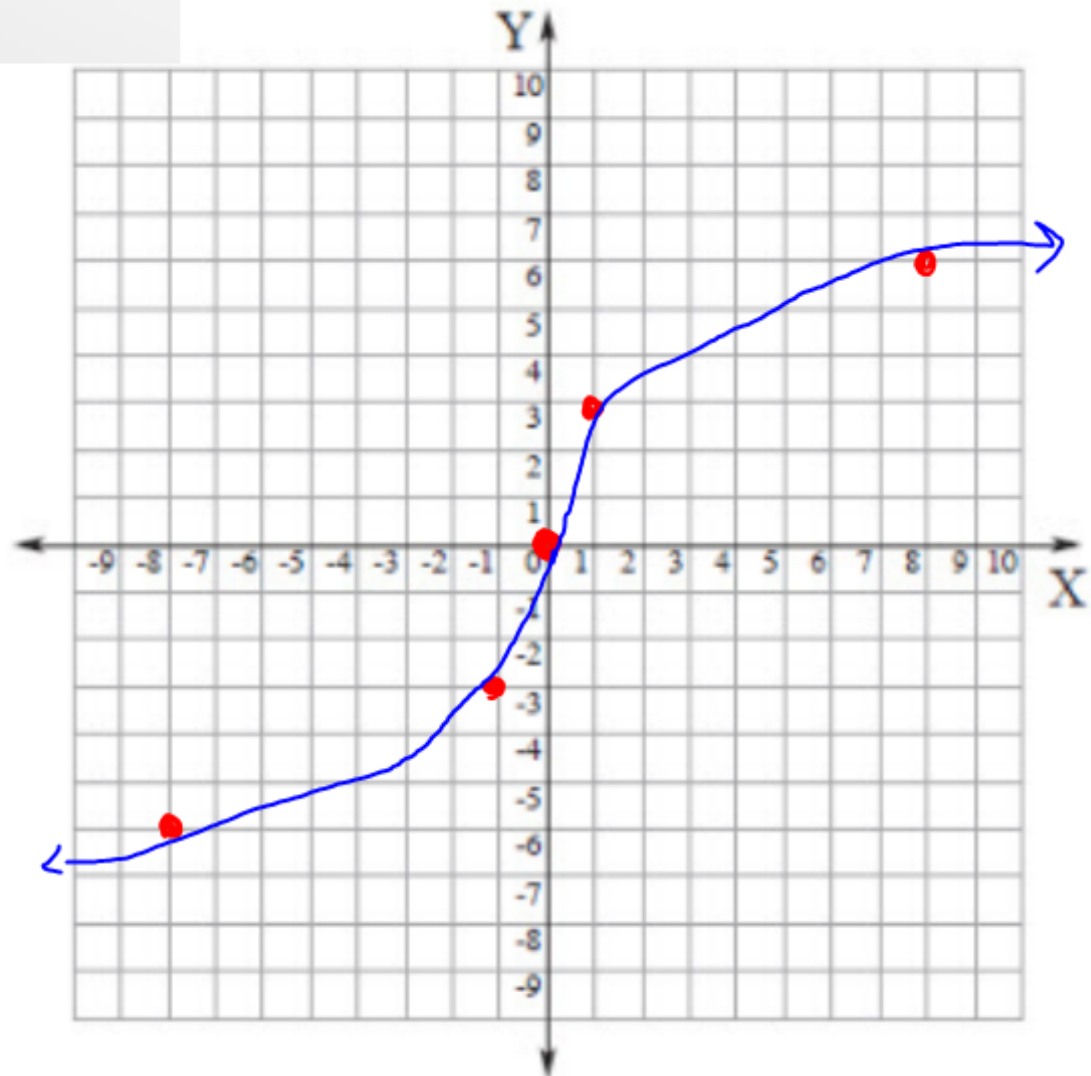
start: -6

| x | y |
|----|---|
| -6 | 0 |
| -5 | 1 |
| -2 | 2 |
| 3 | 3 |
| 10 | 4 |



$$2. f(x) = 3\sqrt[3]{x}$$

| x | y |
|----|----|
| -8 | -6 |
| -1 | -3 |
| 0 | 0 |
| 1 | 3 |
| 8 | 6 |



$$\sqrt{x-2} + 4$$

shift right 2

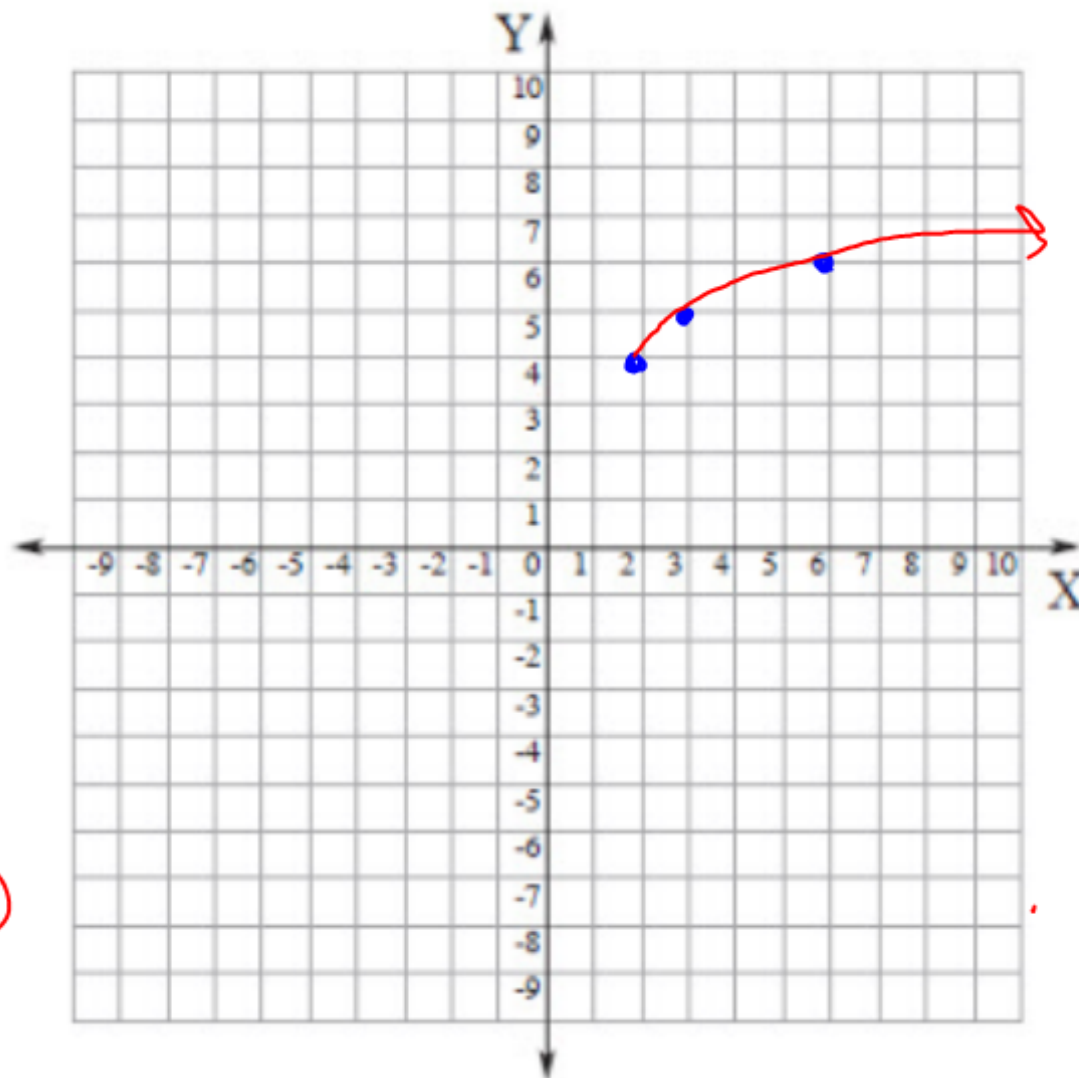
up 4

$$(0,0) \rightarrow (2,4)$$

| x | y |
|---|---|
| 2 | 4 |
| 3 | 5 |
| 6 | 6 |

★ Domain
 $[2, \infty)$

★ Range
 $[4, \infty)$

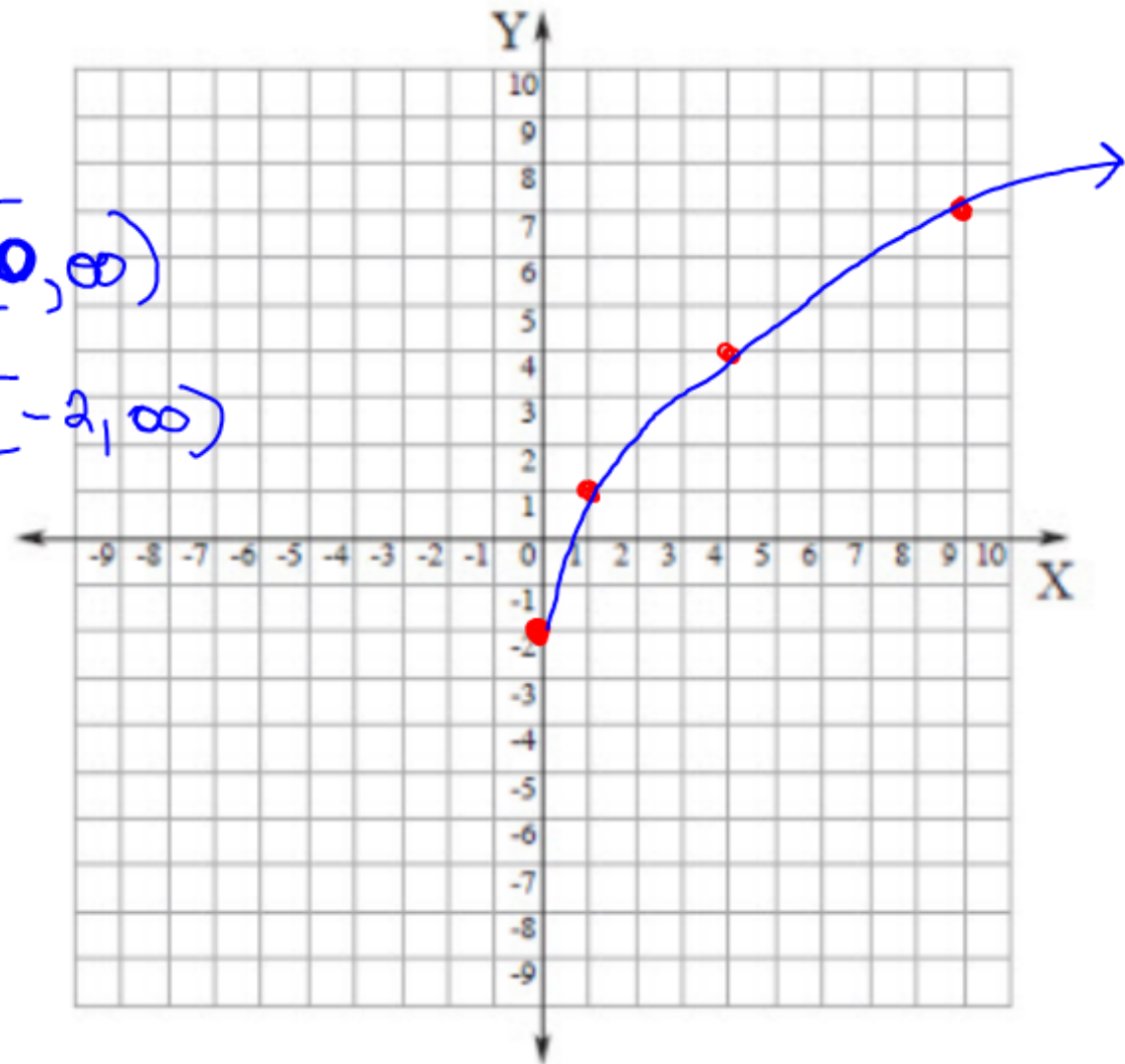


$$3\sqrt{x} - 2$$

| x | y |
|---|----|
| 0 | -2 |
| 1 | 1 |
| 4 | 4 |
| 9 | 7 |

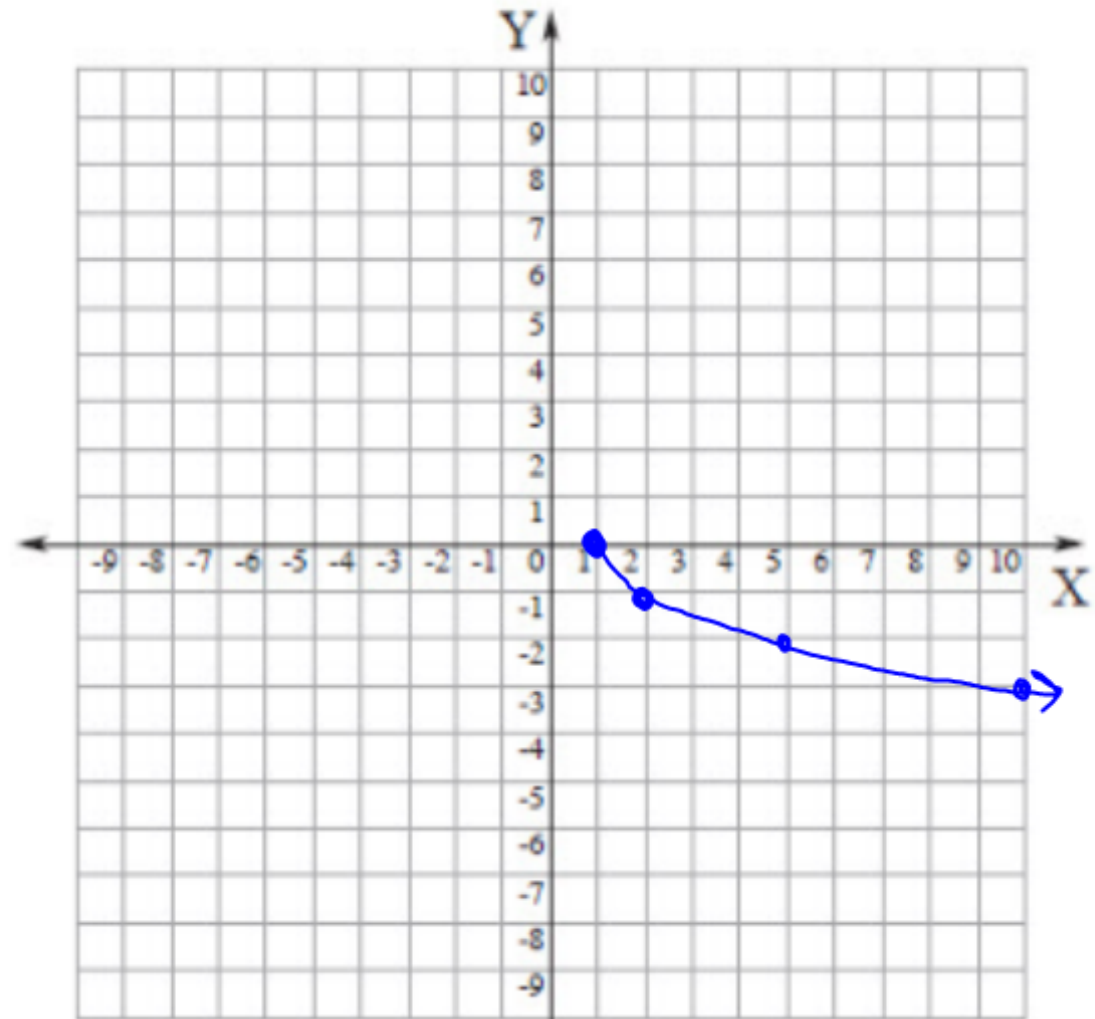
$$D: [0, \infty)$$

$$R: [-2, \infty)$$



$$-\sqrt{x-1}$$

| x | y |
|----|----|
| 1 | 0 |
| 2 | -1 |
| 5 | -2 |
| 10 | -3 |

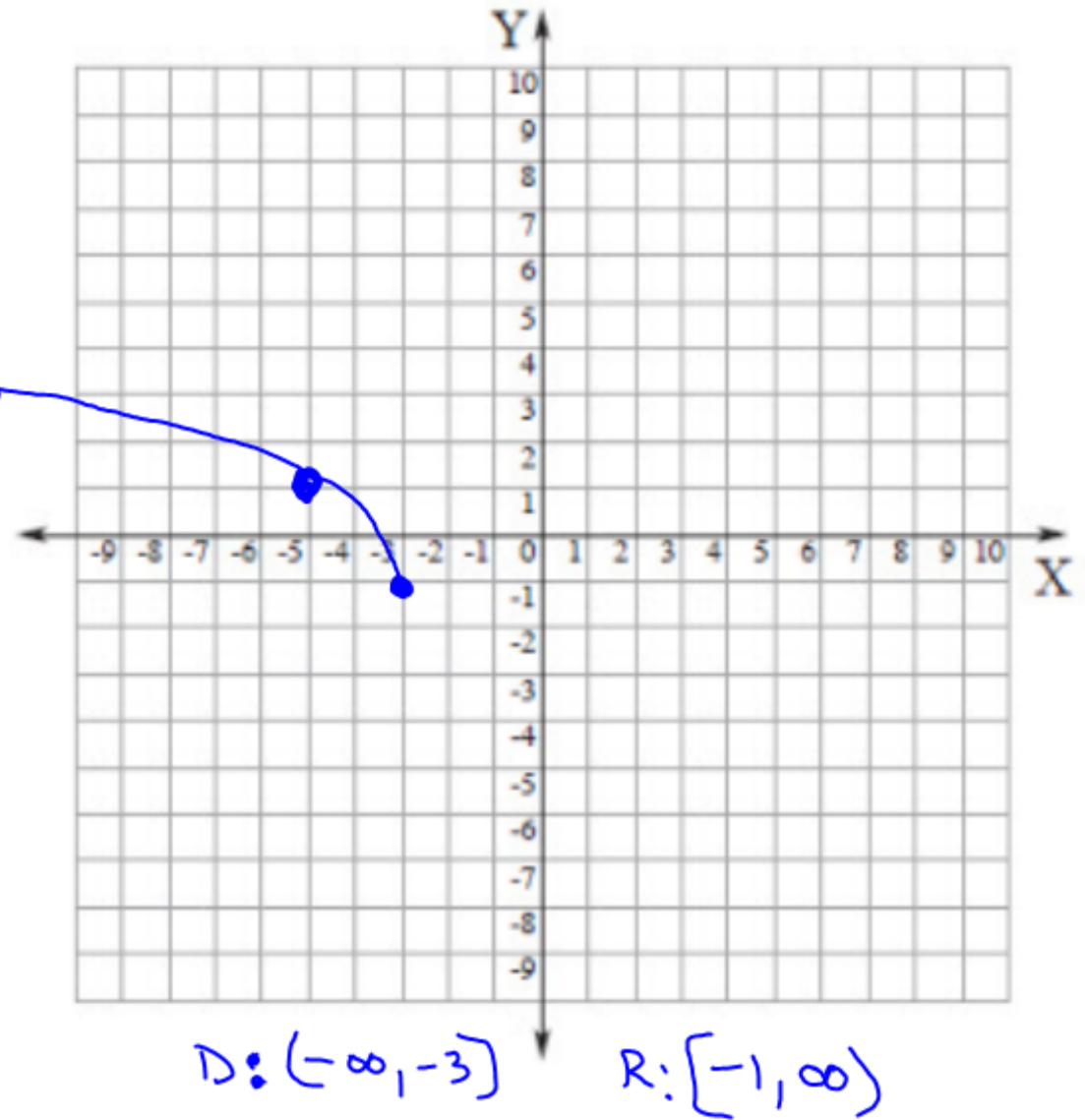



$$D: [1, \infty)$$

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

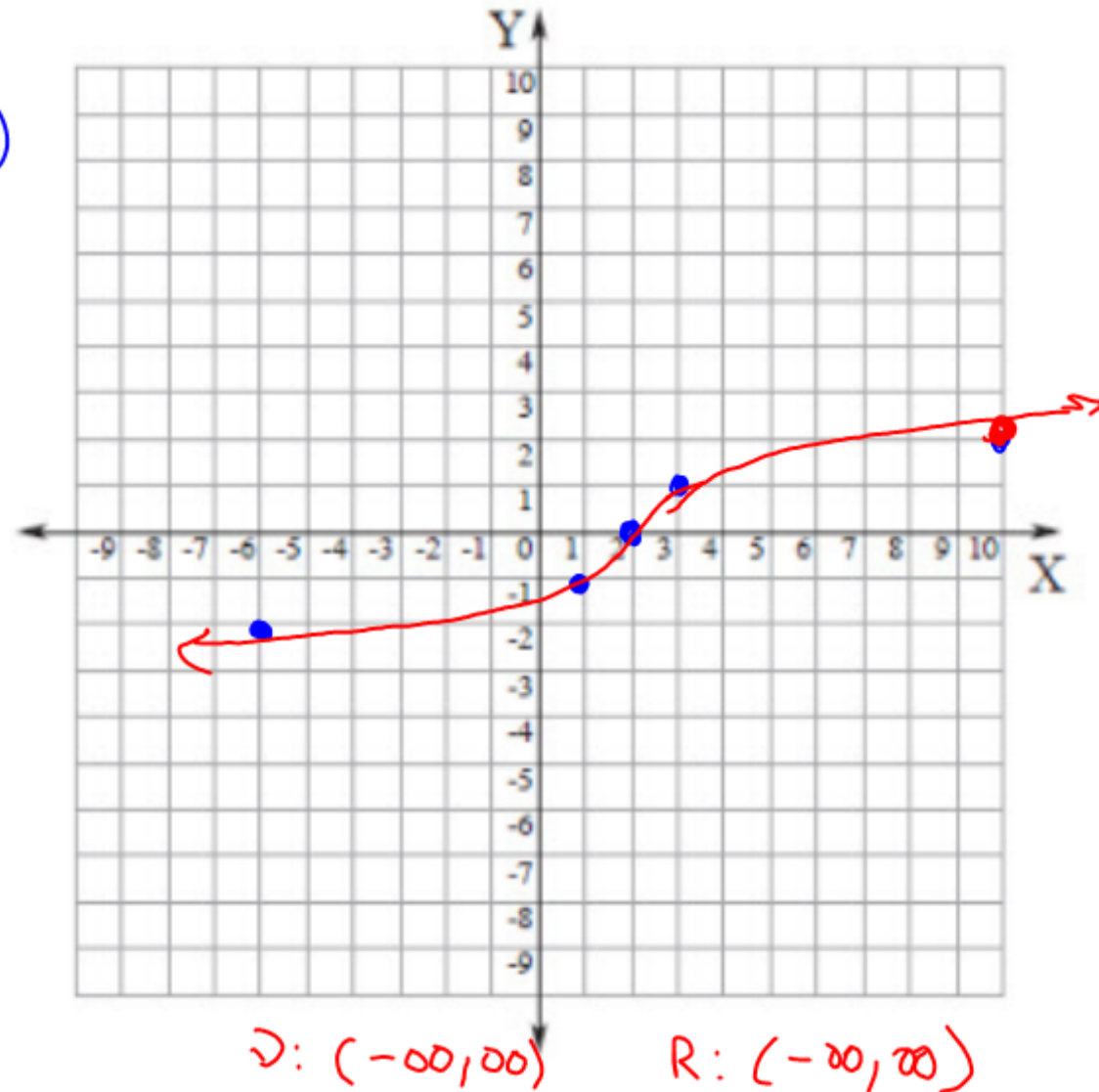
$$\sqrt{-2(x+3)} - 1$$

| X | y |
|-----|----|
| -11 | 3 |
| -5 | 1 |
| -3 | -1 |

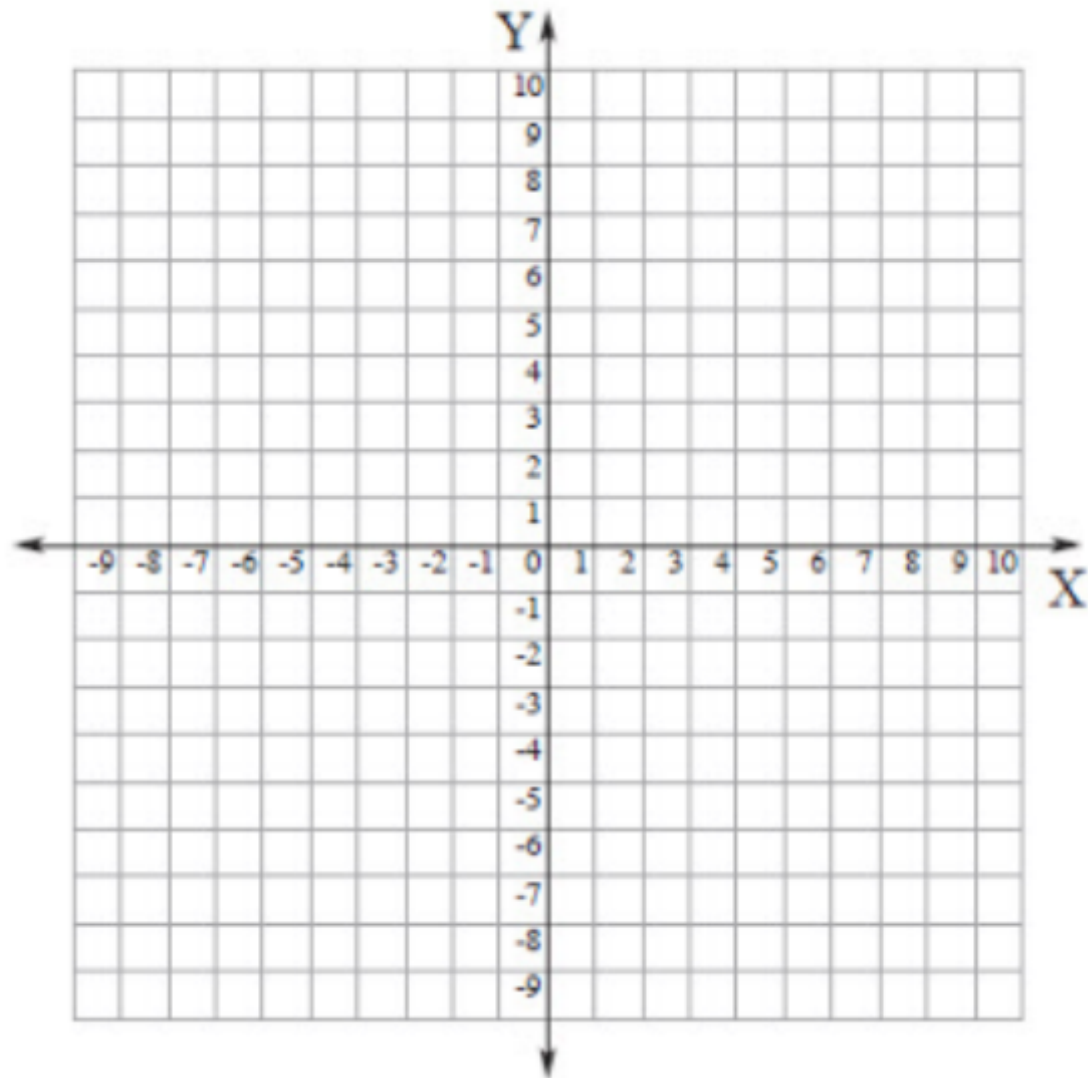


$$\sqrt[3]{x-2}$$


| x | y |
|-----|-----|
| -6 | -2 |
| 1 | -1 |
| ★ 2 | 0 ★ |
| 3 | 1 |
| 10 | 2 |



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



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

| x | y |
|----|---|
| -8 | 6 |
| -1 | 5 |
| 0 | 4 |
| 1 | 3 |
| 8 | 2 |

