Square Root of a Function
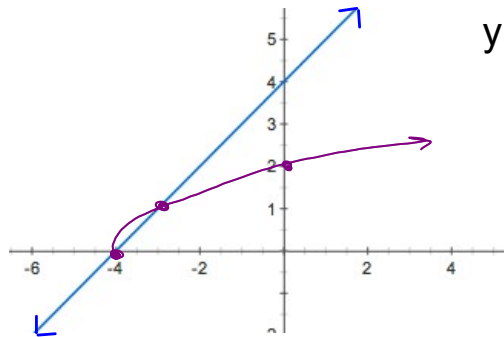
Ex. Given the graphs of f(x) , sketch $\sqrt{f(x)}$.
State the domain and range.

y = f(x)

$$\sqrt{\frac{1}{4}} = \frac{1}{2}$$

$$\frac{1}{16} = \frac{1}{4}$$

$$\sqrt{4} = 2$$

$$\sqrt{-4} = DNE \quad \sqrt{16} = 4$$

Step 1: Locate invariant points and plot them on the graph.
Step 2: Draw the part of the graph between the invariant points above f(x).
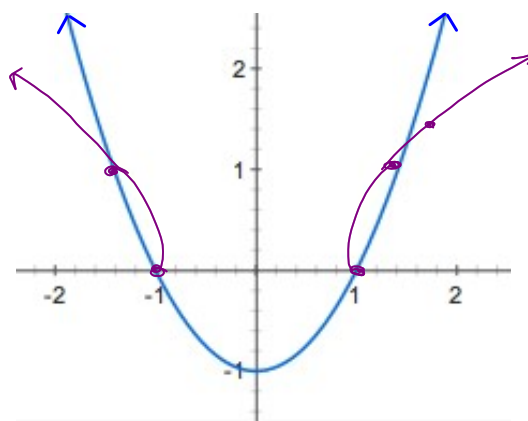**Step 3:** Locate other key points at <u>perfect squares</u> and draw them in below f(x).
Step 4: Sketch a smooth curve between the points.

Remember: Nothing should be below the x-axis!!

Ex. Given the graphs of g(x), sketch $\sqrt{g(x)}$.
State the domain and range.

y = g(x)

D: $(-\infty, -1] \cup [1, \infty)$

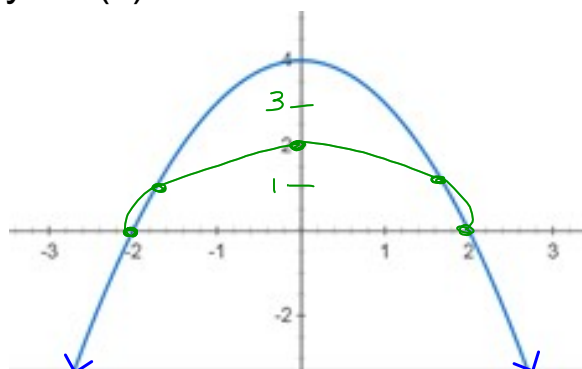D: $\{x \mid x \le -1, x \ge 1\}$

R: $[0, \infty)$

R: $\{y \mid y \ge 0\}$

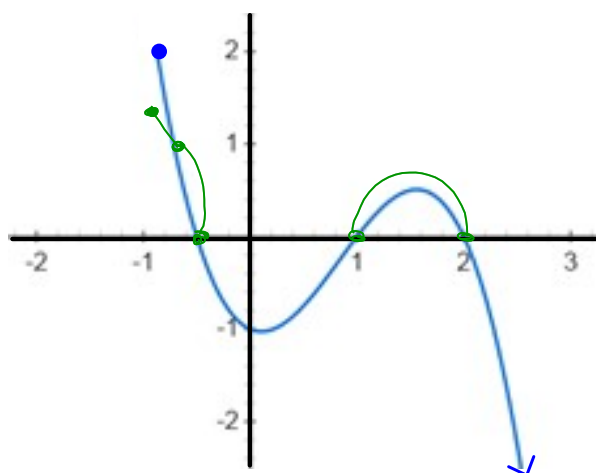Ex. Given the graphs of h(x), sketch √h(x).
   State the domain and range.

   y = h(x)

D: $[-2, 2]$

R: $\{y \mid 0 \le y \le 2\}$

Ex. Given the graphs of p(x) sketch √p(x)
   State the domain and range.

D: $[-1, ½] \cup [1, 2]$

R: $[0, \sqrt{2}]$

p. 89
   # 2, 4, 5, 7, 8,
      10, 12, 14