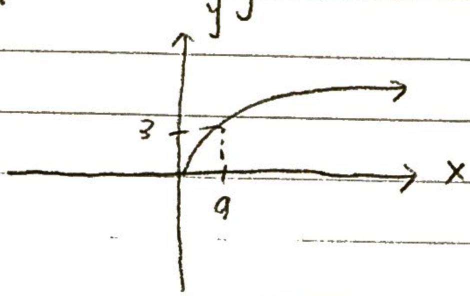
$\sqrt{9}$

3 (not ± 3)

Argument 1:

The square root is a function.
If we were to take $y = \sqrt{x}$, the graph would yield:



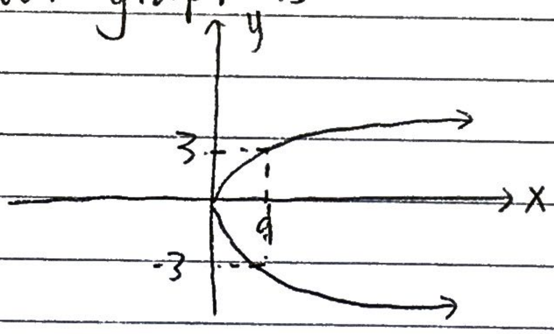
This is a function and passes the VLT. No graph represents an output of -3.

Argument 2:

The counterexample may be if you take

$$y = \sqrt{x}$$
$$y^2 = x \quad \text{(square both sides)}$$

then your graph is



seemingly making output $3, -3$.

However, by squaring both sides, you introduce the negative outputs as EXTRANEOUS SOLUTIONS, which in fact are not solutions.

Argument 3: The counterexample that

$\sqrt{9}$

$\sqrt{(3)^2}$ $\sqrt{(-3)^2}$

3 -3

that the square and square root are inverse operations.

BUT

using laws of exponents, I can rewrite $\sqrt{(-3)^2}$ as $(\sqrt{-3})^2$ which defies the restriction that there must be a non-negative number under the radical.

Argument 4 (this is in HOLT)

$\sqrt[n]{x^n}$ where n is even

$|x|$

so $\sqrt{3^2}$, $\sqrt{(-3)^2}$

$|3|$ $|-3|$

3 3

Argument 5: if $\sqrt{9} = \pm 3$, what does $\pm\sqrt{9}$ yield? By convention, there is an invisible + in front of $\sqrt{9}$, yielding only 3.

Argument 6: $y^2 = x$ solicits 2 real number answers because y has a degree of 2, where as $y = \sqrt{x}$ only solicits 1 answer because

Argument 7: In the case of $x^2 = 9$, (same as argument 6) $\sqrt{x^2} = \sqrt{9}$

$$x = \pm\sqrt{9}$$

$$x = \pm 3$$

in this equation form but only because (argument 5). there is a need for the notation $\pm$

Argument 8: The square root sign $\sqrt{}$ is referred to as the principal square root (aka, the primary square root, positive square root) meaning $\sqrt{9}$ is 3 (only the positive value).

Argument 9: Lines 182 and 183 of the California State Standards of Mathematics for Grade 8 say so. :)