Name Key Date

Per

Chapter 10 Section 1 Notes - Day 2

Objective: Given a radical function, **SWBAT graph using transformations with 70% accuracy.**

Graph of a Radical Function – Translation & Reflection

The graph of $y = a\sqrt{x-b}+c$ is a radical equation.

- **If 'a' is positive:** open up.
- **If 'a' is negative:** open down.

- **If 'b' is positive:** moves left b units
- **If 'b' is negative:** moves right b units.

- **If 'c' is positive:** moves up c units
- **If 'c' is negative:** moves down c units

Graph of a Quadratic Function - Dilations

- **If |a| > 1:** vertical stretch.
- **If 0 < |a| < 1 (means a fraction, not improper):** vertical shrink. (graph flattened)

Example 1: f(x) = $\frac{1}{2}\sqrt{x}+2$

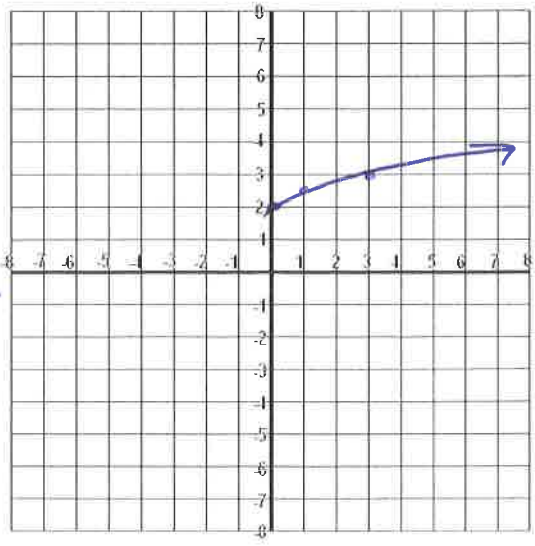
domain: $x \geq 0$

range: $y \geq 2$

x	y
0	2
1	2.5
4	3
9	3.5

transformations

- Vertical shrink of $\frac{1}{2}$
- moves up 2 units.



Example 2: $f(x) = -\frac{1}{4}\sqrt{x} - 1$

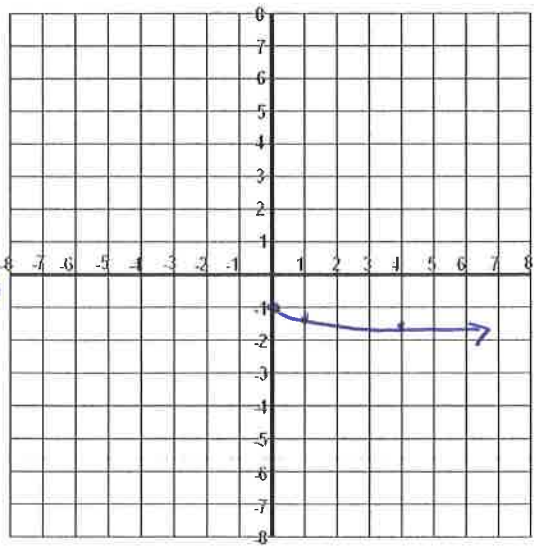
domain: $x \geq 0$

range: $y \leq -1$

x	y
0	-1
1	-1.25
4	-1.5
9	-1.75

Transformations

- reflects over x-axis
- vertical shrink of $\frac{1}{4}$
- moves down 1 unit



Example 3: $f(x) = -2\sqrt{x+1}$

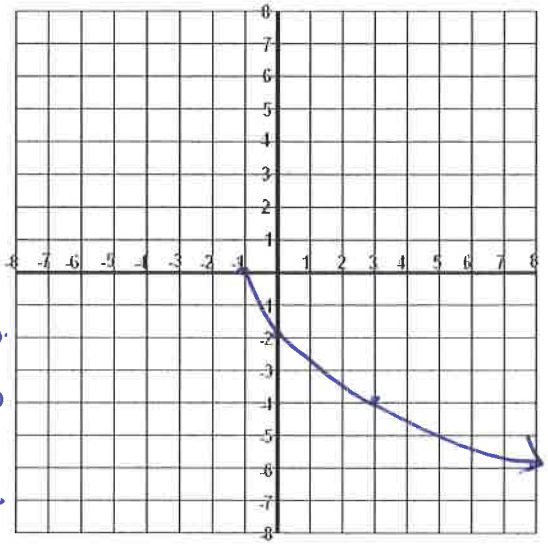
domain: $x \geq -1$

range: $y \leq 0$

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

Transformations

- reflects over x-axis
- moves left 1 unit
- vertical stretch of 2



Example 4: $f(x) = 3\sqrt{x-2}$

domain: $x \geq 2$

range: $y \geq 0$

x	y
2	0
3	3
6	6
11	9

Transformations

- vertical stretch of 3
- moves right 2 units.