

ALGEBRA 2 HONORS
 RADICAL FUNCTION GRAPHS WORKSHEET
 UNIT 5 WORKSHEET 6

NAME _____ Key
 PER _____ DATE _____

| SKETCH EACH GRAPH. | | 1. $f(x) = \sqrt[3]{x+1}$ | 2. $f(x) = -\sqrt{x+2}$ | 3. $f(x) = \sqrt{x-1} + 3$ | 4. $f(x) = \sqrt[3]{x-2} - 3$ |
|----------------------|--|--|---|--|--|
| DOMAIN | | \mathbb{R} | $[-2, \infty)$ | $[1, \infty)$ | \mathbb{R} |
| RANGE | | \mathbb{R} | $[-\infty, 0]$ | $[3, \infty)$ | \mathbb{R} |
| END POINT | | NONE | $(-2, 0)$ | $(1, 3)$ | NONE |
| POINT OF SYMMETRY | | pt $(-1, 0)$ | NONE | NONE | pt $(2, -3)$ |
| X-INTERCEPTS | | -1 | -2 | NONE | 29 $3 = \sqrt[3]{x-2}$ $27 = x-2$ |
| Y-INTERCEPTS | | 1 | -1.414 $-\sqrt{2}$ | NONE | -4.26 $3\sqrt{2}-3$ |
| INCREASING INTERVALS | | $(-\infty, \infty)$ | NONE | $[1, \infty)$ | $(-\infty, \infty)$ |
| DECREASING INTERVALS | | NONE | $[-2, \infty)$ | NONE | NONE |
| LEFT END BEHAVIOR | | as $x \rightarrow -\infty, f(x) \rightarrow -\infty$ | as $x \rightarrow -\infty, f(x) \rightarrow$ DNE | as $x \rightarrow -\infty, f(x) \rightarrow$ DNE | as $x \rightarrow -\infty, f(x) \rightarrow -\infty$ |
| RIGHT END BEHAVIOR | | as $x \rightarrow \infty, f(x) \rightarrow \infty$ | as $x \rightarrow \infty, f(x) \rightarrow -\infty$ | as $x \rightarrow \infty, f(x) \rightarrow \infty$ | as $x \rightarrow \infty, f(x) \rightarrow \infty$ |
| MAXIMUM VALUE | | NONE | 0 | NONE | NONE |
| MINIMUM VALUE | | NONE | NONE | 3 | NONE |

| SKETCH EACH GRAPH. | | 5, $f(x) = -\sqrt[3]{x-1} + 2$ | 6, $f(x) = \sqrt[4]{x} - 5$ | 7, $f(x) = -\sqrt{x+4} + 1$ | 8, $f(x) = \sqrt[3]{x} + 5$ |
|----------------------|--|---|---|---|--|
| DOMAIN | | \mathbb{R} | $[0, \infty)$ | $[-4, \infty)$ | \mathbb{R} |
| RANGE | | \mathbb{R} | $[-5, \infty)$ | $(-\infty, 1]$ | \mathbb{R} |
| ENDPOINT | | None | $(0, -5)$ | $(-4, 1)$ | None |
| SYMMETRY | | pt $(1, 2)$ | None | None | pt $(0, 5)$ |
| X-INTERCEPTS | | 9 $-2 = -\sqrt[3]{x-1}$ $+8 = x-1$ $x=9$ | 6.25 $5 = \sqrt[4]{x}$ $5^4 = x$ | -3 | -125 $-5 = \sqrt[3]{x}$ $-125 = x$ |
| Y-INTERCEPTS | | 3 | -5 | -1 | 5 |
| INCREASING INTERVALS | | None | $[0, \infty)$ | None | $(-\infty, \infty)$ |
| DECREASING INTERVALS | | $(-\infty, \infty)$ | None | $[-4, \infty)$ | None |
| LEFT END BEHAVIOR | | as $x \rightarrow -\infty, f(x) \rightarrow \infty$ | as $x \rightarrow -\infty, f(x) \rightarrow \text{DNE}$ | as $x \rightarrow -\infty, f(x) \rightarrow \text{DNE}$ | as $x \rightarrow -\infty, f(x) \rightarrow -\infty$ |
| RIGHT END BEHAVIOR | | as $x \rightarrow \infty, f(x) \rightarrow -\infty$ | as $x \rightarrow \infty, f(x) \rightarrow \infty$ | as $x \rightarrow \infty, f(x) \rightarrow -\infty$ | as $x \rightarrow \infty, f(x) \rightarrow \infty$ |
| MAXIMUM VALUE | | None | None | 1 | None |
| MINIMUM VALUE | | None | -5 | None | None |