## Homework




## Graphing Radical Equations

NC.M2.A-CED. 2 Create and graph equations in two variables to represent quadratic, square root and inverse variation relationships between quantities.
NC.M2.F-IF. 4 Interpret key features of graphs, tables, and verbal descriptions in context to describe functions that arise in applications relating two quantities, including: domain and range, rate of change, symmetries, and end behavior. NC.M2.F-IF. 7 Analyze quadratic, square root, and inverse variation functions by generating different representations, by hand in simple cases and using technology for more complicated cases, to show key features, including: domain and range; intercepts; intervals where the function is increasing, decreasing, positive, or negative; rate of change; maximums and minimums; symmetries; and end behavior.

## Radical Transformations

base function: $y=\sqrt{x}$

- Use what you know about transformation to make conjectures about the following equations with parent function $y=\sqrt{x}$. Check your conjectures with your groups and your calculator.

1) $y=\sqrt{x-5}$


$$
y=\sqrt{x}-6
$$


-Do the graphs look like you expected? Why or why not?

## Practice:

- For the following equation find the:
- Sketch the graph
- Translation RS U3

- Domain $[5, \infty)$
- Range $[3, \infty)$
\% End Behavior
- Increasing Interval $[5, \infty)$
- Decreasing Interval N/A


Right up
$x \rightarrow 5 \quad y \rightarrow 3 \quad x \rightarrow \infty \quad y \rightarrow \infty$

## Practice:

- For the following equation find the:
- Sketch the graph Vertical
- Trans on (0,1) starch
$y=4 \sqrt{x}-1$
- Domain $[0, \infty)$
- Range $[-1, \infty)$
- End Behavior $x \rightarrow 0$ y $\rightarrow-1 \mid x \rightarrow \infty, y \rightarrow \infty$
- Increasing Interval $[0, \infty)$
- Decreasing Interval N/A

$$
\begin{aligned}
& \text { left down right up } \\
& \text { pt pt }
\end{aligned}
$$

## Practice:

- For the following equation find the:
- Sketch the graph
- Translation
- Domain

$$
y=\frac{2}{5} \sqrt{x+4}
$$

- Range
- End Behavior
- Increasing Interval
- Decreasing Interval


## Practice:

- For the following equation find the:
- Sketch the graph Reflect
- Translation (6,-4) x-ax. $\quad y=-\sqrt{x-6}-4$
- Domain (6 /ex)
- Range $(-\infty,-4]$
- End Behavior $x \rightarrow 6 y \rightarrow-4 \mid x \rightarrow \infty y+-\infty$
- Increasing Interval N/A
- Decreasing Interval $(6, \infty)$



## Practice:

- For the following equation find the:
- Sketch the graph
- Translation RZ
- Domain ( $-\infty, \infty$ )
$-\operatorname{Range}(-\infty, \infty)$
$\leftrightarrow \infty$ End Behavior $x \rightarrow-\infty y \rightarrow-\infty$
$\rightarrow$ Increasing Interval $(-\infty, \infty)$
$\rightarrow \quad$ Decreasing Interval $N$ A
Left down

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



Right up

## Practice:

- For the following equation find the:
- Sketch the graph
$(0,6)$
- Translation U6
- Domain $(-\infty, \infty)$

$$
y=\sqrt[3]{x}+6
$$

- Range $(-\infty, \infty)$
- End Behavior $x \rightarrow-\infty y \rightarrow-\infty$
- Increasing Interval ${ }_{(-\infty, \infty)}^{y \rightarrow \infty}$
- Decreasing Interval N/A
Loft Down Risht up


## Practice:

- For the following equation find the:
- Sketch the graph
- Translation
- Domain
- Range
- End Behavior
- Increasing Interval
- Decreasing Interval


## Practice:

- For the following equation find the:
- Sketch the graph
- Translation $\cup 5$ Reflect

- Domain ( $-\infty, \infty$ )
- Range $(-\infty, \infty)$
- End Behavior | $x \rightarrow-\infty$ |
| :---: |
| $x \rightarrow \infty$ |
| $y \rightarrow-\infty$ |
| $y \rightarrow-\infty$ |
- Increasing Interval NA
- Decreasing Interval $(-\infty, \infty)$
Left up right down


## Practice:

- For the following equation find the:
- Sketch the graph
- Translation
- Domain

$$
y=\frac{1}{4} \sqrt[3]{x-2}+5
$$

- Range
- End Behavior
- Increasing Interval
- Decreasing Interval

