## Math Virtual Learning

## Algebra 2A <br> Polynomial Parent Functions

May 11, 2020

## Lesson: <br> Sketching Polynomial Parent Functions

## Learning Target:

LT C2 I can identify key features (zeros, multiplicity, end behavior, y-intercept, local minimums and maximums, turning points, transformations).

## Objective:

Students will be able to identify parts of a graph.

## Warm Up

1. $g(x)=x^{2}-1$

Give the name of
the parent function

$$
\text { 2. } \mathrm{f}(\mathrm{x})=2|x-1|
$$ and describe the transformation represented

$$
\text { 3. } \mathrm{h}(\mathrm{x})=\sqrt{x-2}
$$

4. $g(x)=x^{3}+3$

Warm Up Answers
Give the name of the parent function and describe the transformation represented.

1. $g(x)=x^{2}-1 \quad$ Name: quadratic

Transformation: $\qquad$
2. $\mathrm{f}(\mathrm{x})=2|x-1|$

Name: $\qquad$ absolute value Stretched by factor of 2,
Transformation: $\qquad$
3. $\mathrm{h}(\mathrm{x})=\sqrt{x-2} \quad$ Name: square root

Transformation: $\qquad$ shifted right 2 units
4. $g(x)=x^{3}+3$

Name: $\qquad$ cubic
Transformation: Shifted up 3 units

## Lesson for the day

For today, we will be reviewing $x$ - and $y$-intercepts Then we will be looking at the end behavior of a graph.

Please watch the following two videos.
Identifying $x$ - and $y$ - intercepts
How to describe end behavior of functions

## Practice

For the following four graphs label the x-intercept, the y-intercept, and the end behavior.



1.


$$
\begin{aligned}
& x \text {-int. }(3,0) \\
& y \text {-int. }(0,-1) \\
& \text { end behavior } \\
& f(x) \rightarrow+\infty \text { as } x \rightarrow+\infty \\
& f(x) \rightarrow-\infty \text { as } x \rightarrow-\infty
\end{aligned}
$$

Practice Answer Key (On this and the next 3 slides)
2.


$$
\begin{aligned}
& x \text {-int. }(1,0) \\
& y \text {-int. }(0,1)
\end{aligned}
$$ end behavior

$$
\begin{array}{ll}
f(x) \rightarrow-\infty & \text { as } x \rightarrow+\infty \\
f(x) \rightarrow+\infty & \text { as } x \rightarrow-\infty
\end{array}
$$


$x$-int. $(0,0)(4,0)$ $y$-int. $(0,0)$ end behavior

$$
\begin{array}{ll}
f(x) \rightarrow-\infty & \text { as } x \rightarrow t+\infty \\
f(x) \rightarrow-\infty & \text { as } x \rightarrow-\infty
\end{array}
$$


end behavior

$$
\begin{aligned}
& f(x) \rightarrow+\infty \text { as } x \rightarrow+\infty \\
& f(x) \mapsto-\infty \text { as } x \rightarrow-\infty
\end{aligned}
$$

