## Math Virtual Learning

## Algebra 2A <br> Polynomial Parent Functions

May 20, 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

Match each polynomial function to its graph.

$$
f(x)=-x^{3}-24 x^{2}-192 x-512 \quad g(x)=x^{3}-21 x^{2}+144 x-323
$$




## Warm Up Answers



## Lesson

Today, we will be learning about multiplicity of zeros in both graphs and equations in intercept form.

Find the Multiplicity and Zeros of a Polynomial when It is in Factored Form: https://www.youtube.com/watch?v=Y610aZ5Cg84

Multiplicity of zeros of polynomials | Polynomial graphs | Algebra 2 | Khan Academy: https://www.youtube.com/watch? $\mathrm{v=jrFLb9ZoZH0}$

## Practice

Find the zeros and the multiplicity of the equations.

1. $y=x(x+2)(x-2)$
2. $y=x(x+2)^{2}(x-2)$
3. $y=(x+3)(x+1)(x-2)^{3}$
4. $y=(x-1)^{2}(x+2)^{3}(x-2)$

## Answers to Practice Problems

1. 

| zeros | multiplicity |
| :---: | :---: |
| 0 | 1 |
| -2 | 1 |
| 2 | 1 |

3. | zeros | multiplicity |
| :---: | :---: |
| -3 | 1 |
| -1 | 1 |
| 2 | 3 |
4. zeros multiplicity

| 0 | 1 |
| ---: | ---: |
| -2 | 2 |
| 2 | 1 |

4. | zeros | multiplicity |
| :---: | :---: |
| 1 | 2 |
| -2 | 3 |
| 2 | 1 |

## Extra Practice

For extra practice on solving quadratic equations using the zero product property, click here.

