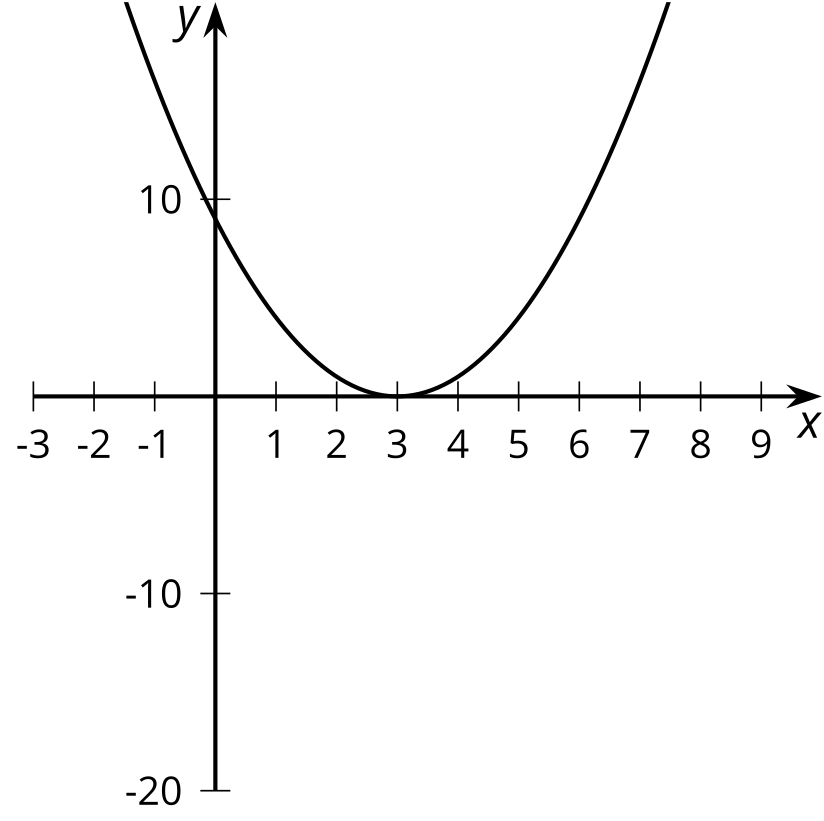
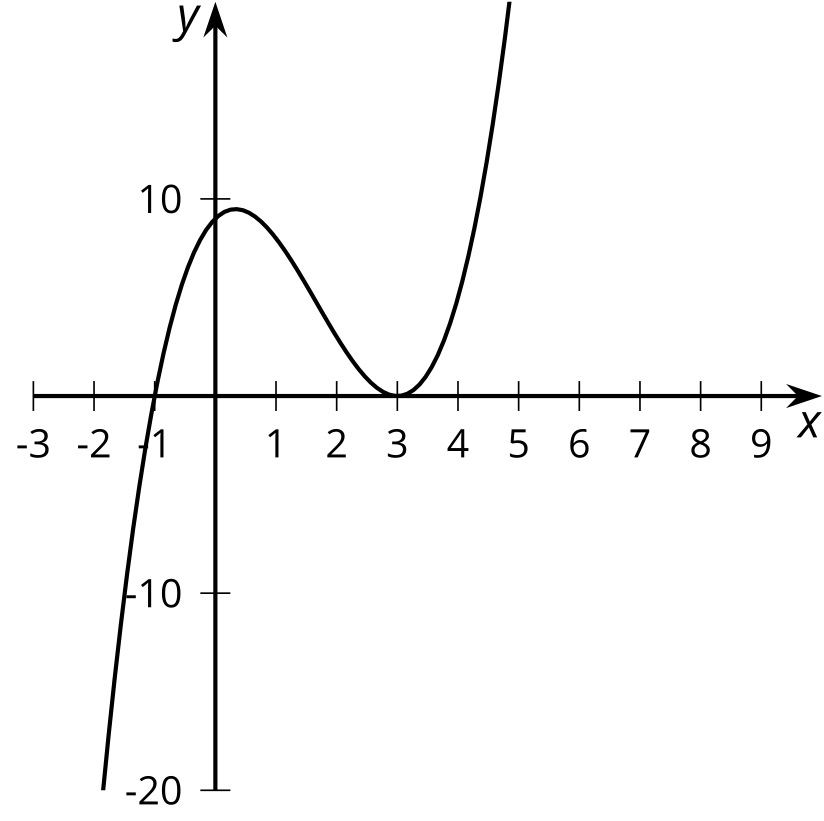
## Unit 2 Lesson 10: Multiplicity

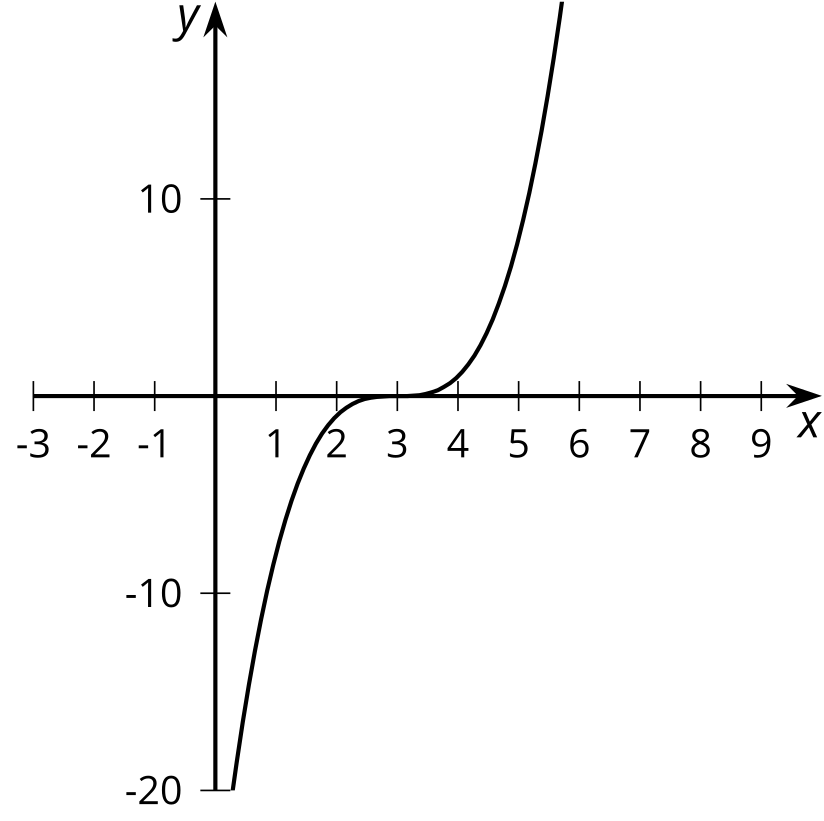
### 1 Notice and Wonder: Duplicate Factors (Warm up)

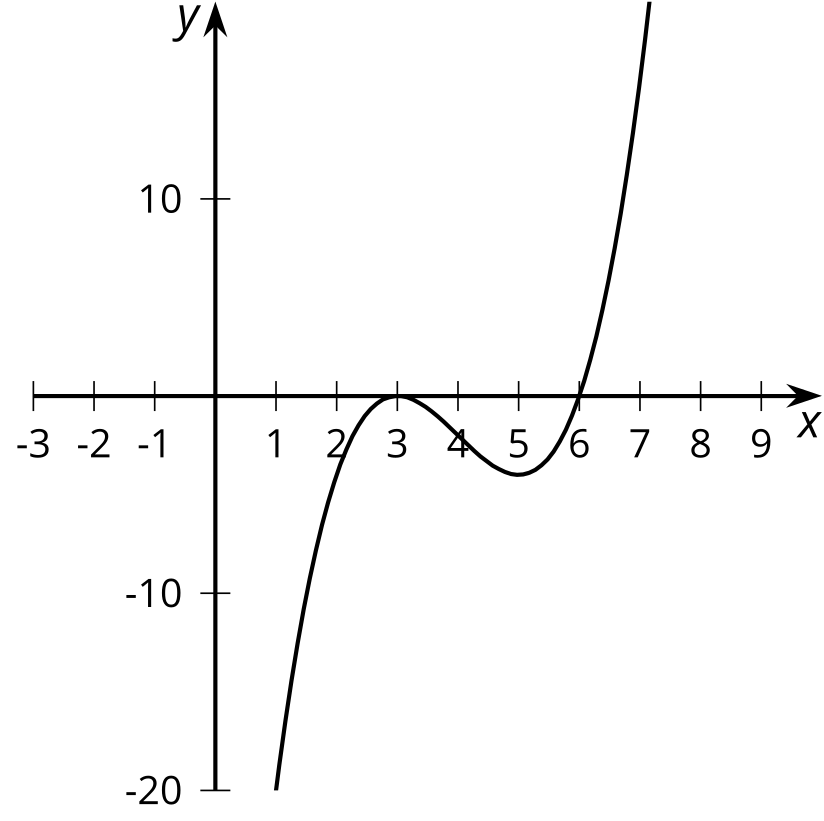
#### Student Task Statement

What do you notice? What do you wonder?









### 2 Sketching Polynomials

#### Student Task Statement

1. For polynomials –:
   1. Write the degree, all zeros, and complete the sentence about the end behavior.
   2. Sketch a possible graph.
   3. Check your sketch using graphing technology.
   * Pause here for your teacher to check your work.
2. Create your own polynomial for your partner to figure out.
   1. Create a polynomial with degree greater than 2 and less than 8 and write the equation in the space given.
   2. Trade papers with a partner, then fill out the information about their polynomial and complete a sketch.
   3. Trade papers back. Check your partner’s sketch using graphing technology.

Degree:                     Zeros:   
End behavior: As gets larger and larger in the negative direction,



Degree:                     Zeros:   
End behavior: As gets larger and larger in the negative direction,



Degree:                     Zeros:   
End behavior: As gets larger and larger in the negative direction,



Degree:                     Zeros:   
End behavior: As gets larger and larger in the negative direction,



​​​​​​

Degree:                     Zeros:   
End behavior: As gets larger and larger in the negative direction,



Degree:                     Zeros:   
End behavior: As gets larger and larger in the negative direction,



Your polynomial:

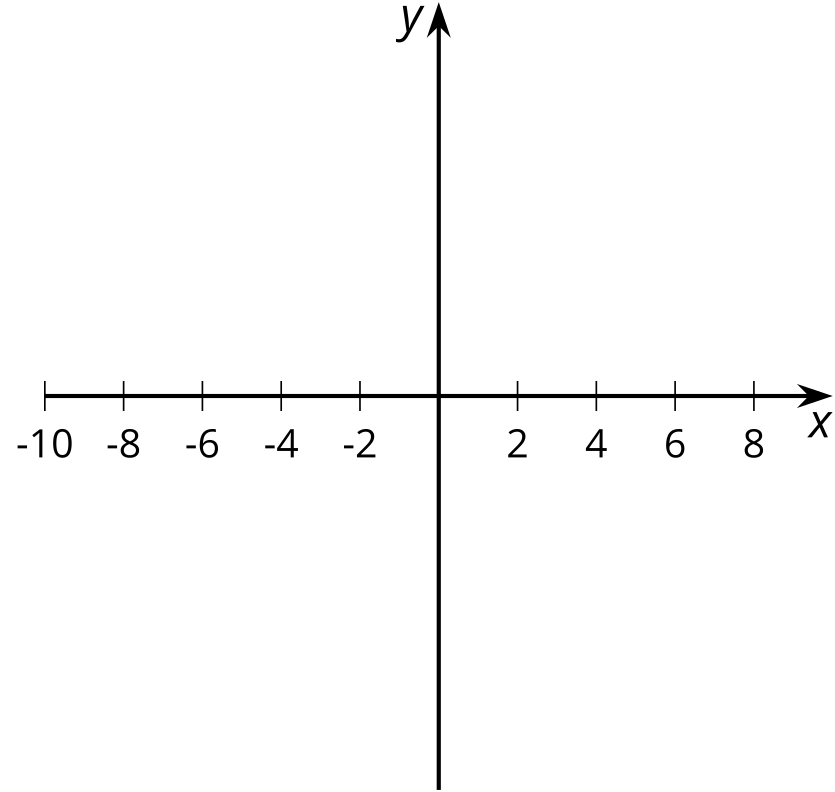
Degree:                     Zeros:   
End behavior: As gets larger and larger in the negative direction,



### 3 Using Knowledge of Zeros (Optional)

#### Student Task Statement

1. Sketch a graph for a polynomial function that has 3 different zeros and for all values of .

* 

1. What is the smallest degree the polynomial could have?
2. What is a possible equation for the polynomial? Use graphing technology to see if your equation matches your sketch.



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