Discovering Degrees Student Worksheet **Name: _____**

Definition of Degree:

Definition of Constant:

Degree	Standard Form	# of Terms	Equation Name	Graph Description	Graph Name
0 Degree					
1st Degree					
2nd Degree					
3rd Degree					
4th Degree					
5th Degree					
6th Degree					
7th Degree					
Generalization for nth degree					

Problem 2 Questions (0 degree):

1. What type of line do you have on the graph? Is it parallel/perpendicular to anything?

2. What do you notice about the graph when you change the values of the constant?

3. What happens when your constant is a negative? Positive? Where is the line?

4. Can you graph a vertical line? If so, how? It not, why?

Problem 3 Questions (1st degree):

1. What do you notice about the "a" value when you rotate the graph?

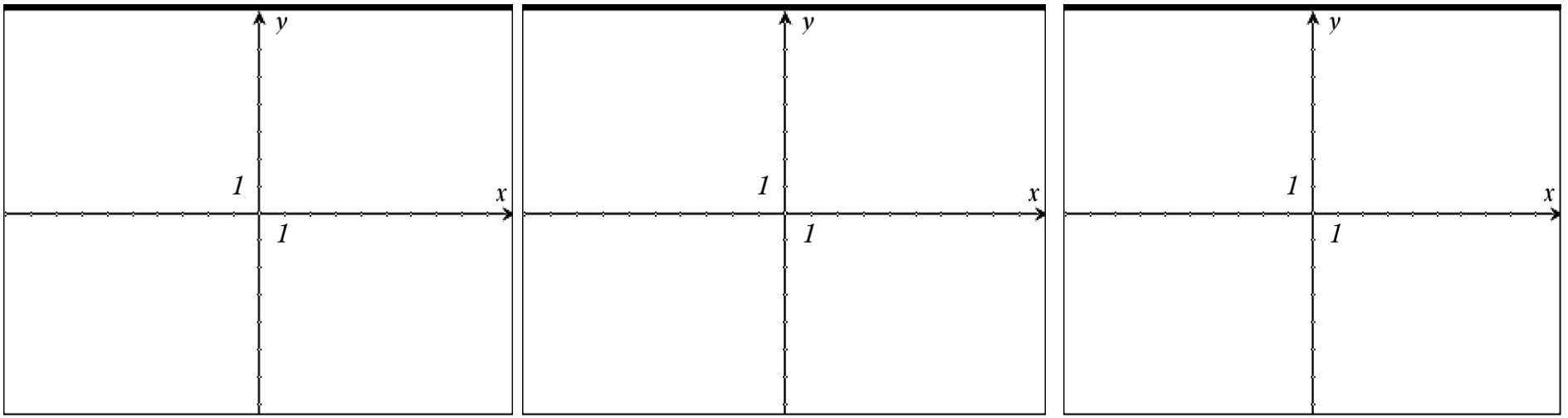
2. When is the "a" value negative? Positive? Zero?

3. What do you notice about the "b" value when you drag and move the graph?

4. When is the "b" value negative? Positive? Zero?

Problem 4 (2nd degree): Graph 1: BLUE Graph 2: RED Graph 3: GREEN

Page 4.1 (change "a"value) Page 4.2 (change "b" value) Page 4.3 (change "c" value)



Problem 4 Questions:

1. What do you notice on Page 4.1 when you change the value of "a"? How does a positive value differ from a negative value? Can "a" be zero? TRY THIS ON YOUR HANDHELD.

2. What do you notice on Page 4.2 when you change the value of "b"? How does a positive value differ from a negative value? What happens with "b" is zero?

3. What do you notice on Page 4.3 when you change the value of "c"? How does a positive value differ from a negative value? What happens with "c" is zero?

Problem 5 Questions (3rd degree):

1. What shape is the graph of a 3rd degree equation? Give it a name of your own choice.

2. The value for "d" is zero in the equation on Page 5.1 (d is the constant at the end). Predict what will happen if you add a value for "d". Did your prediction hold up? What happens when "d" is positive? Negative?

Problem 6 Questions (exploring higher degrees):

1. What shape is the graph of a 4^{th} degree equation (enter only first term x^4)? 5^{th} degree (x^5)? 6^{th} degree (x^6)? 7^{th} degree (x^7)?

2. What pattern do you see? Explain how to describe the graph of a 100^{th} degree equation.

Problem 8-Extensions/Homework:

1. Find creative names for each graph so that it will be easier to remember the type by degree. Explain your naming method.
2. What would the graph of a 10,576,201th degree equation look like? Explain your reasoning.
3. Share 3 things you learned today.