***Student Data Sheet***

**Problem 1:**

1. Which constant did you choose to explain? _____

2. Place a screen shot of the graph(s) that help you explain in the box below.

**Problem 2:**

1. What number did you use for the RandSeed? _____

2. What values did you get for A: _____ and C: _____?

3. List the 7 values you got for B. _____

4. In the table below list the 4 values of B you selected and the variable names used.

| Variable Name | Value |
|---|---|
| | |
| | |
| | |
| | |

5. As you see the four quadratics with B being changed, how would you describe the effect of B on the graph?

_____

_____

_____

6. What is happening to the maximum or minimum on the graph?

_____

_____

_____

7. Fill in the table with the max/min values you got for the four values of B. Indicate if we have a maximum or minimum.

| B | Xmax/min | Ymax/min |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

8. Why did you get maximums or minimums?

_____

9. What model type did you select for the pattern between the Xmax and Ymax (Xmin and Ymin) values? When you round the constants, what values do you get for the function?

_____

_____

_____

10. How is this function related to B and to the core quadratic in f1(x)?

_____

_____

11. What happened to the pattern on max/min points as you change B? Explain.

_____

_____

_____

12. Collect the data indicated in the table below from 3 other groups.

| Team | A | C | Function that models the max/min (Rounded) |
|---|---|---|---|
| My Team | | | |
| | | | |
| | | | |
| | | | |

13. What pattern do you see now? Explain.

_____

_____

_____

14. What function type do you think you have that relates B and Xmax/min? Give the exact values. How is this function related to your Quadratics?

_____

_____

_____

**<u>Problem 3:</u>**

1. Make a sketch of the arrangement for the event in the box below. Label the CBR2 and other parts.

2. What value of B do you think you will get from the data? Why?

3. What value did you get for B? Were you close in your prediction? Explain.

4. With a unit analysis, determine the units of A, B, and C in your Quadratic from the CBR2 experiment.

5. How would you modify the event to increase the value of B from your data? Decrease the value of B from your data?