Name _____ Date _____

LESSON 1.8

Challenge Practice

For use with the lesson "Represent Functions as Graphs"

1. Graph the functions $y = \left(\frac{x}{3}\right)^2$ and $y = \left(\frac{x}{3}\right)^3$ in the same coordinate plane. At which values of x do the two graphs intersect?

In Exercises 2 and 3, refer to the graphs in Exercise 1.

2. Which graph is greater over the interval of x-values from -1 to 1?

3. Which graph is greater over the interval of x-values larger than 1?

In Exercises 4–8, use the following information.

A researcher is interested in studying the relation between the grip strength of a person's dominant hand and a person's non-dominant hand. (If a person is right-handed, then the right hand is the dominant hand; if a person is left-handed, then the left hand is the dominant hand.) The researcher collects data on 6 volunteers.

Volunteer	1	2	3	4	5	6
Dominant Hand	110	120	150	85	50	90
Non-dominant Hand	100	115	150	70	45	85

4. Plot the dominant hand measurements and the non-dominant hand measurements as outputs for the common input of volunteer number. Do you notice any difference between the dominant hand and the non-dominant hand functions?

5. Do you notice any trends in the two functions?

6. To better illustrate the difference between the dominant hand grip strength and the non-dominant hand grip strength, what function might you create and plot?

7. If dominant hand grip strength is considered as the input and non-dominant hand grip strength as the output, do you have a function?

8. Suppose the study is expanded and uses 100 volunteers instead of 6. Do you think it is likely that considering dominant hand grip strength as the input and non-dominant hand grip strength as the output will give a function? Explain your reasoning.