Written HW2 – MATH 1540 Fall 2020

Due by Thursday, 27 August for timely completion credit

Functions are defined by four things:

1. a name for the function,
2. a domain for the function ("where inputs live"),
3. a codomain for the function ("where outputs live"), and
4. a rule of assignment.

In this homework, you will work with this definition. In (24 August) class, we looked at some functions with certain domains and codomains, all with rule of assignment $x \mapsto x^2$. We were careful to structure the domain and codomain in the sketch to correspond to how the function is defined.

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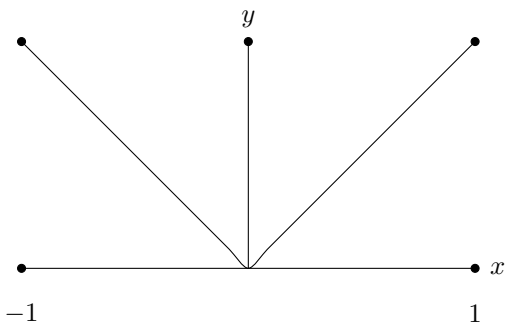
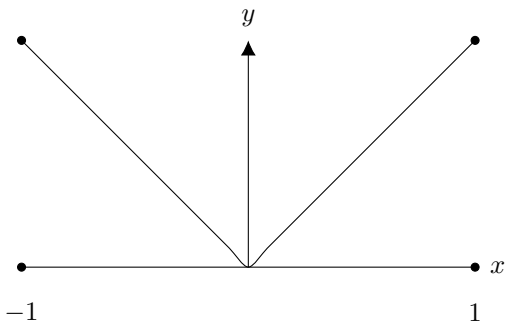
1. Sketch the function $\begin{cases} g\colon \mathbb{R} \to \mathbb{R} \\ g(x) = x^3 \end{cases}$
2. Sketch the function $\begin{cases} h\colon [-1,1] \to \mathbb{R} \\ h(x) = x^3 \end{cases}$
3. Sketch the function $\begin{cases} h\colon [0,1] \to [0,1] \\ h(x) = x^3 \end{cases}$

Now I will draw some functions and you should produce the function's definition.

4. Write the function by giving it a name, specifying its domain, specifying its codomain, and giving its rule of assignment (it is a standard function in the library of functions).



5. Write the function by giving it a name, specifying its domain, specifying its codomain, and giving its rule of assignment (it is a standard function in the library of functions).



6. Write the function by giving it a name, specifying its domain, specifying its codomain, and giving its rule of assignment (it is a standard function in the library of functions).