

Written HW2 – MATH 1540 Spring 2022

**Due by Friday 21 January 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 class, we looked at some functions with certain domains and codomains, all with rule of assignment  $x^2$ . We were careful to structure the domain and codomain in the sketch to correspond to how the function is defined.

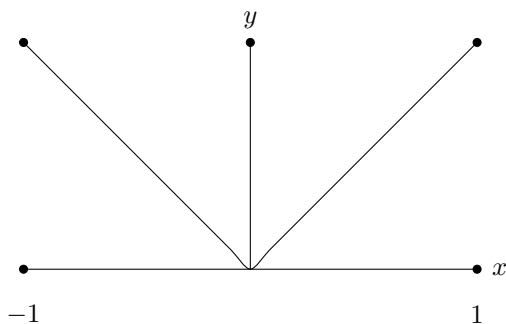
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1. Sketch the function  $\begin{cases} g: \mathbb{R} \rightarrow \mathbb{R} \\ g(x) = x^3 \end{cases}$
2. Sketch the function  $\begin{cases} h: [-1, 1] \rightarrow \mathbb{R} \\ h(x) = x^3 \end{cases}$
3. Sketch the function  $\begin{cases} h: [0,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

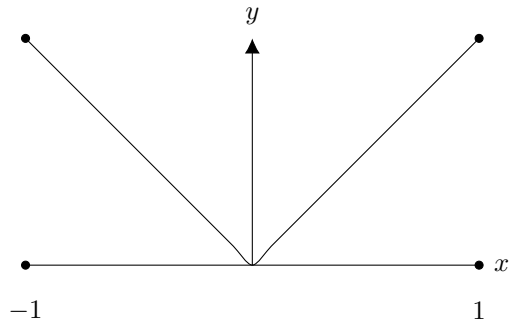
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Now I will draw some functions and you should produce the function’s definition. All functions use the rule of assignment to be the absolute value function  $|x|$ .

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).

